

TSC 6800 Text Editing System

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West Lafayette, Indiana 47906
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TEXT EDITING SYSTEM

INTRODUCTION

Contained in the following pages is a complete description and source listing of the TSC Text Editing System: This system is a content oriented text editor which is powerful, simple to use, and easy to learn. Particular attention should be paid to the section titled "Adapting to Your System".

As in all TSC software, a great effort has been put forth in testing to eliminate "bugs" in the code. This however is no guarantee of perfect code. If a suspected bug is spotted, please jot down the circumstances involved and send it to TSC. Errata sheets with all patches will be sent to owners if necessary.

GETTING THE SYSTEM STARTED

After all of the code has been entered, and all of the adaptations to your system have been made, start executing the program at location 200 hex. The system should respond with:

NEW FILE:

1.00 =

The system is now ready to accept the text file input from the keyboard.

If the editor is left and later it is desirable to reenter the editor to work on the previous text file, it is necessary to enter at location 203 hex, otherwise all workspace will be cleared. If a system containing MIKBUG[®] is used this "restart" address will automatically be used on a "G" command.

MINI-TUTORIAL

The purpose of this section is to briefly introduce the reader to the use of the TSC Text Editing System. We will, therefore, illustrate its use with a number of examples. In order to make it more obvious what things are typed by the user and what things are displayed by the editor, we will subscribe to the convention that things underlined are user-typed and things not underlined are displayed by the editor.

When the editor is initially entered, the response is as shown above. At this time we will create our file by simply typing all lines until finished, terminating each line with a "carriage return".

NEW FILE:

```

1.00 =THIS IS AN EXAMPLE OF THE FANTASTICALLY USEFUL
2.00 =TSC TEXT EDITING SYSTEM. A NUMBER OF
3.00 =EXAMPLES WILL BE SHOWN TO ALLOW EASY AND
4.00 =QUICK LEARNING OF ITS FEATURES.
5.00 =FOLLOWING ARE SOME NONSENSE LINES:
6.00 =ABCDEFGHIJKL
7.00 =AAAAAAAAA
8.00 =TESTING 1234
9.00 =THIS EDITOR IS FUN TO USE!
10.00 =BBBBBBBB
11.00 =
12.00 =THIS IS THE END OF THIS FILE,
13.00 =AT LEAST FOR NOW.
14.00 =#
13.00 =AT LEAST FOR NOW.

```

Notice it was necessary to type a pound sign (#) in column one to leave the buffered input mode. At this time, the system printed the last line and returned with the system prompt (a pound sign). The editor is now ready to accept commands.

Any time characters are being typed into the editor the following two characters have special meaning:

1. "control" H - Deletes the last character typed (backspace).
2. "control" X - Deletes entire current line being typed.

These are useful, when detected typing errors occur, for immediate correction.

Each line of text in the edit file is given or has a line number which is used by the editor to uniquely identify the line. Each line number is

of the form 'm.nn' where 'm' is an integer and 'n' represents any of the digits 0 through 9. To specify a line number, one has to specify only that portion of the line number to identify it uniquely. For example, 73, 73., 73.0, and 73.00 may be used to refer to line 73.00; 259.6 refers to line 259.60. The largest line number used with the editor is 9999.99. Let's denote a specification of a line of text by the symbol "<line>". We will be using this symbol throughout this document.

An editor command tells the editor what action is to be performed and usually what line or block of lines are to be affected (if any). For each editing facility supported by the editor, there is a directive which is used in commands to indicate the desired action. For example, the editor can delete lines of text from a file, insert lines of text into the file, print lines contained in the file, and so on. Corresponding to each capability there is a directive; hence, there is a Delete directive, an Insert directive, a Print directive, and so on. If we define the symbol <directive> to mean any editor directive, the basic form of an edit command is

<line><directive>

For example, the command to display (Print) line 12.00 is

```
#12 P
12.00 =THIS IS THE END OF THIS FILE,
#
```

where "12" is the <line> specification and "P" is the <directive> in this command. As can be seen in the example, this causes line number 12 to be printed on the terminal.

Now, let's learn how to use the Insert directive. In normal usage of the word "insert" we say something like, "Insert this card after this other card." To use the Insert directive, we specify the line after which we want to insert new lines followed by an I:

<line>I

After typing the directive followed by a carriage return, the editor will select an appropriate line number and prompt for input by displaying the line number followed by an equal sign. After each line of text is entered

and the carriage return is typed, the editor will prompt for the next line. To exit from the "Insert mode" one simply types a pound sign followed by an edit directive in response to a new line prompt.

Some examples of the use of Insert are

```
#8I
8.10 =THIS IS AN INSERTED LINE.
8.20 =SO IS THIS.
8.30 =#11 I
11.10 =ANOTHER INSERTED LINE.
11.20 =#6 P
6.00 =ABCDEFGHIJKL
```

It should be noted that the editor may renumber some lines following the inserted text. This occurs when enough lines are inserted such that the inserted line numbers overlap line numbers in the original text.

Next, let's learn how to use the Delete directive. With this directive we can delete one line or a block of lines with one directive. To delete only one line, we specify the <line> to be deleted followed by a D:

<line>D

When the carriage return is typed, the line disappears.

To delete more than one line we need to indicate not only the first line to delete but also the last line to be deleted. Let's call the last line the "target" line and denote its specification as "<target>". Although the editor supports fancier ways to specify the <target>, we'll just consider the two simplest: (1) <target> may be the number of lines to be deleted (counting both the first and last line of the block), or (2) <target> may be a pound sign followed immediately by the line number of the last line of the block to be deleted. Some example <target>s are: 3 (delete three lines), 26 (delete 26 lines), and #26 (delete lines through line 26.00).

The syntax to Delete a block of lines is

<line>D <target>

where <line> indicates the first line to delete and <target> indicates the scope of the delete.

To illustrate the use of the Delete directive, let's assume we have a file containing 53 lines with integer line numbers (i.e., 1, 2, 3, ..., 53).

With the directives

```
#15D
#24D #31
#52D 2
BOTTOM OF FILE REACHED
#
```

we now have a file with lines 1 through 14, 16 through 23, and 32 through 51. The first directive deleted line 15. The second directive deleted lines 24 through 31. The third directive deleted two lines starting with line 52. Since it deleted the last line of the file, the editor displayed the message "BOTTOM OF FILE REACHED."

Before we discuss any more directives, we need to expand the definitions of <line> and <target>.

As editing operations are performed, the editor keeps track of the "current line" which usually is the line most recently affected by a successful edit directive. Upon entering the editor, the "current line" is the first line of the file. If, for example, we have just inserted three lines between lines 12.00 and 13.00, the current line will be 12.30. One should note that after a line or a block of lines have been Deleted, the line immediately following the last one deleted is made the current line (if the last line of the file was deleted, the new last line of the file will be the current line).

In our discussions above, we have implied that one has to explicitly indicate a <line> for each directive by specifying the line number of the line of interest. However, if <line> is not specified in a directive, the "current line" is used. For example, if one enters the directive

```
#D 2
#
```

the editor will delete two lines starting with the current line. In our example, since we were at line 6.00, the "D2" operation deleted lines 6.00 and 7.00. As you will learn to appreciate, the "current line" default for line is extremely handy.

After performing all of the above operations, our file now looks like this:

```

1.00 =THIS IS AN EXAMPLE OF THE FANTASTICALLY USEFUL
2.00 =TSC TEXT EDITING SYSTEM. A NUMBER OF
3.00 =EXAMPLES WILL BE SHOWN TO ALLOW EASY AND
4.00 =QUICK LEARNING OF ITS FEATURES.
5.00 =FOLLOWING ARE SOME NONSENSE LINES:
8.00 =TESTING 1234
8.10 =THIS IS AN INSERTED LINE.
8.20 =SO IS THIS.
9.00 =THIS EDITOR IS FUN TO USE!
10.00 =BBBBBBBB
11.00 =
11.10 =ANOTHER INSERTED LINE.
12.00 =THIS IS THE END OF THIS FILE,
13.00 =AT LEAST FOR NOW.

```

We have seen that <line> may be specified by a line number or by default to the current line. There are also several other ways to specify <line>, or in other words, to move the pointer to a desired line prior to the execution of an edit directive. One may also specify <line> with a "+n" or "-n" (where n is an integer) meaning the next nth line in the file or the nth previous line in the file, respectively. Two other useful <line> designators are "+" ("^" on some terminals) and "+" (| on some terminals). The up arrow "+" is used to designate the top or first line in the file. The down arrow "+" is used to move to the last line or bottom of file. These various <line> specifiers are shown in the example below with the PRINT directive.

```

#P      1.00 =THIS IS AN EXAMPLE OF THE FANTASTICALLY USEFUL
#+3 P   4.00 =QUICK LEARNING OF ITS FEATURES.
#! P    13.00 =AT LEAST FOR NOW.
#-2P    11.10 =ANOTHER INSERTED LINE.
#

```

There may be times while editing a file when we know part of the contents of a line of interest but don't know its line number nor its displacement from the current line. In such a case we can use the "content-oriented" feature of the editor to find it. The syntax to specify <line>

in this way is

```
/<string>/
```

where "/" is a character to delimit (enclose) the <string> which is a sequence of characters known to be in the line. When <line> is specified as "/<string>/", the editor will search for the current line through the file to find the next line containing the specified <string>. Some examples will help to clarify this: (1) /PRINT/ denotes the next line containing the character string "PRINT", and (2) /GO TO 35/ refers to the next line containing "GO TO 35". If the <string> is found in any subsequent line of the file, that line will be made the current line and the requested edit operation will be performed on it. If the <string> does not occur anywhere subsequent in the file, the editor will issue the message "NO SUCH LINE" and will not change the current line pointer. Note that the delimiter does not need to be a slash; it may be some other character such as a quote (') or a comma. For example, 'A/B' refers to the next line containing "A/B".

It is also possible to prefix the string designator with "-" (minus sign) to indicate a previous line containing that string. A few examples with our TEST FILE will show the use of "/<string>/" as a <line> designator.

```
#-/QUICK/P
    4.00 =QUICK LEARNING OF ITS FEATURES.
#123; P
    8.00 =TESTING 1234
#+END'P
    12.00 =THIS IS THE END OF THIS FILE,
#
```

To summarize, we have seen that <line> may be specified a number of ways, namely: (1) by default to the current line, (2) by typing a line number, (3) by "+n" denoting the nth subsequent line, (4) by "-n" referring to the nth previous line, (5) by "/<string>/" denoting the next line in the file containing the indicated string of characters, (6) "-/<string>/" to denote the nearest previous line containing the specified character string, (7) "+" ("^" on some terminals) to denote the first line of the file, and (8) "+" ("!" on some terminals) to denote the last line of the file.

Now let's turn our attention to expanding the definition of <target>. As you may recall, a <target> is used in some directives to indicate the

number of lines to be affected by the edit operation. We have already seen that a <target> may be specified by (1) an integer "n" indicating the number of lines to be affected, as P3, meaning print 3 lines, and (2) a line number preceded by a pound sign (#) indicating the line number of the last line to be affected, as P #6, meaning print all lines to and including line #6. The <target> is simply a designator telling how many lines the edit directive should operate on. In addition to the two mentioned forms of <target>, we also have, (3) if no <target> is specified in a command whose syntax includes one, a <target> of 1 is assumed, thereby affecting only one line. As with <line>, one may specify <target> by (4) "/"<string>/" which indicates the next line in the file containing the specified character string, (5) "↑" to denote the top line in the file, and (6) "↓" to denote the bottom line in the file. A minus sign may be used to indicate that processing is to proceed backward through the file in the following two cases: (7) "-n" and (8) "-/"<string>/".

With an understanding of <line> and <target> we can now discuss some more directives. The Print directive is used to display a line or a group of lines. Its syntax is

<line>P <target>

where "<line>" and "<target>" may be specified in any of the ways discussed above. To print just one line one needs to specify only <line> followed by a carriage return; therefore, the following two directives perform the same thing:

<line>P

and

<line>

Going back to our test file, we can illustrate the various forms of <target> as used with the Print directive.

#2P

2.00 =TSC TEXT EDITING SYSTEM. A NUMBER OF

#-1

1.00 =THIS IS AN EXAMPLE OF THE FANTASTICALLY USEFUL


```

#P /EASY/
  1.00 =THIS IS AN EXAMPLE OF THE FANTASTICALLY USEFUL
  2.00 =TSC TEXT EDITING SYSTEM. A NUMBER OF
  3.00 =EXAMPLES WILL BE SHOWN TO ALLOW EASY AND
#I P -3
  13.00 =AT LEAST FOR NOW.
  12.00 =THIS IS THE END OF THIS FILE,
  11.10 =ANOTHER INSERTED LINE.
#- /BBB/ P - /123/
  10.00 =BBBBBBBB
  9.00 =THIS EDITOR IS FUN TO USE!
  8.20 =SO IS THIS.
  8.10 =THIS IS AN INSERTED LINE.
  8.00 =TESTING 1234
#12P!
  12.00 =THIS IS THE END OF THIS FILE,
  13.00 =AT LEAST FOR NOW.
#

```

The first directive displayed line 2.00 and made that line the current line. The second directive requested that the line immediately preceding the current line be displayed. The third directive displayed the block of lines from the current line down through the line containing the character string "EASY". The fourth directive printed 3 lines starting at the bottom of the file and ending at line 11.10, which became the current line. The fifth directive requested the previous line containing the character string "BBB" be found, and then starting with that line, display all lines going backwards through the file until a line containing the character string "123" has been displayed. This shows the extreme usefulness and power of the content-oriented characteristic of the editor. The last directive requested that all lines from line 12.00 to the end or bottom of file be displayed.

The next directive to discuss is Next which is used primarily to move the current line pointer. Although it may be used otherwise, usually it is used only with the default <line>. Its syntax is

N <target>

This directive finds the line indicated by target, displays it, and makes it the current line. A few examples will illustrate its use.


```

#CP 1.00 =THIS IS AN EXAMPLE OF THE FANTASTICALLY USEFUL
#N 2.00 =TSC TEXT EDITING SYSTEM. A NUMBER OF
#N 6 8.20 =SO IS THIS.
#N -2 8.00 =TESTING 1234
#

```

The following directive performs single-line replacements or inserts.
Its syntax is

`<line>=<text>`

where "<line>" specifies the number of the line to be replaced or inserted and may, of course, default to the current line. "<text>" is the text to comprise the line. To illustrate this directive, let's continue our example series.

```

#=REPLACE CURRENT LINE HERE
#5.25=THIS LINE CREATED WITH "EQUALS".
#

```

The first directive changed the contents of line 8.00, the current line.

The second example inserted a line with the line number 5.25.

The next directive to be discussed is the Change directive. It is used to change occurrences of one character string into another. Its syntax is

`<line>C /<string>1/<string>2/ <target> <occurrence>`

where "/" is a delimiter character to separate the two character strings; "<string>₁" is the character string to be replaced; "<string>₂" is the string of characters to replace them; "<target>" specifies the range of the changes; and "<occurrence>" specifies which occurrence(s) of <string>₁ should be replaced in the line(s). If <occurrence> is 1 or is not specified, then only the first occurrence of <string>₁ in any line of the block will be changed--the second or subsequent occurrence of the string in such a line will not be affected. If 2 is specified for <occurrence>, then only the second occurrence of <string>₁ in any line of the block will be changed. To change all occurrences of the indicated string in the block, use an

asterisk (*) for <occurrence>. Let's illustrate the Change directive by continuing our example.

```
#4C /QUICK/FAST/
    4.00 =FAST LEARNING OF ITS FEATURES.
#8.1 C /THIS IS //
    8.10=AN INSERTED LINE.
#-5C ;A;$$ ;SOME; *
    3.00 =EX$MPLES WILL BE SHOWN TO $LLOW E$SY $ND
    4.00 =F$ST LE$RNING OF ITS FE$TURES.
    5.00 =FOLLOWING $RE SOME NONSENSE LINES:
#12 C /E/?/ -2 3
    12.00 =THIS IS THE END OF THIS FIL?,
    11.10 =ANOTHER INSERT?D LINE.
#
```

The first example replaced the string "QUICK" with the string "FAST" in line 4.00. The second example deleted the string "THIS IS" and a blank from line 8.10. The third example starts at the fifth previous line (line 3.00) and changes every occurrence of "A" to "\$" down through all lines until the line containing the character string "SOME" (line 5.00) is reached. The last example changes the third occurrence of "E" to "?" in line 12.00 and then in line 11.10.

The last directive to be discussed is used to exit from the editor. This can be done several different ways: STOP, S, or LOG. This will return you to your system monitor.

Now lets go back to our test file and illustrate some of the features and directives we have discussed.

```
#^P!
1.00 =THIS IS AN EXAMPLE OF THE FANTASTICALLY USEFUL
2.00 =TSC TEXT EDITING SYSTEM. A NUMBER OF
3.00 =EX$MPLES WILL BE SHOWN TO $LLOW E$SY $ND
4.00 =F$ST LE$RNING OF ITS FE$TURES.
5.00 =FOLLOWING $RE SOME NONSENSE LINES:
5.25 =THIS LINE CREATED WITH "EQUALS".
8.00 =REPLACE CURRENT LINE HERE
8.10 =AN INSERTED LINE.
8.20 =SO IS THIS.
```



```

9.00 =THIS EDITOR IS FUN TO USE!
10.00 =BBBBBBBB
11.00 =
11.10 =ANOTHER INSERT?D LINE.
12.00 =THIS IS THE END OF THIS FIL?,
13.00 =AT LEAST FOR NOW.
#2C/C /C 6800 /
2.00 =TSC 6800 TEXT EDITING SYSTEM. A NUMBER OF
#/BBB/
10.00 =BBBBBBBB
#-;THIS IS; C 'E'XX' !
1.00 =THIS IS AN XXXAMPLE OF THE FANTASTICALLY USEFUL
2.00 =TSC 6800 TXXXT EDITING SYSTEM. A NUMBER OF
3.00 =XXX$MPLES WILL BE SHOWN TO $LLOW E$SY $ND
4.00 =F$ST LXX$RNING OF ITS FE$TURES.
5.00 =FOLLOWING $RXX SOME NONSENSE LINES:
5.25 =THIS LINXX CREATED WITH "EQUALS".
8.00 =RXXPLACE CURRENT LINE HERE
8.10 =AN INSXXRTED LINE.
9.00 =THIS XXDITOR IS FUN TO USE!
11.10 =ANOTHXXR INSERT?D LINE.
12.00 =THIS IS THXX END OF THIS FIL?,
13.00 =AT LXXAST FOR NOW.
#N -4
10.00 =BBBBBBBB
#-1 I
9.10 =TEST-TEST-TEST
9.20 =1234567890
9.30 =#D!
BOTTOM OF FILE REACHED
#^D!
BOTTOM OF FILE REACHED
#^P!
#S

```

The previous tutorial has been only a brief introduction to the TSC Text Editing System. The remainder of this manual contains a detailed description of each directive with examples, in the next section, followed by "How to Use Tape" and "Adapting to Your System". It is important to read and study the entire manual in order to fully understand and utilize all of the power and features of this editor. The source listing is the last section.

EDITOR DIRECTIVES

There are five groups of editor directives: environment directives, system directives, "current line" movers, edit directives, and tape directives. A complete description of all directives in each group is given below. In the following descriptions, quantities enclosed in square brackets ([...]) are optional, and may be omitted. Verticle lines (|) separate options.

Several of the editor directives use character strings as arguments. These arguments are either matched against strings in the text, or replace a string in the text. A string argument begins after a delimiter character and continues as a sequence of any legal characters until the delimiter is again encountered. The delimiters are not considered part of the string to be used in the matching or replacement operations. Although the delimiters in the following descriptions are frequently represented as slashes, "/", any legal non-blank, non-alphanumeric character may be used as the delimiter such as: * / () \$ = , . \equiv [] : ' etc. Note that the following characters may not be used to enclose strings unless they are preceded by either a plus (+) or minus (-) sign: "+" (denotes first line of file), "+" (denotes last line of file), "-" (denotes target is above current line), and the character denoted by LINO (normally a pound sign) which is used to flag line numbers. The delimiter character is redefined in each new request by its appearance before a string. If two strings exist in one directive (as in the Change directive), the same delimiter character must be used for each string.

All of the editor directives use the <line> information preceeding the directive to position the pointer prior to any directive action. The <line> parameter may of course be null, meaning leave the pointer at its current position. All of the following are valid <line> designators:

- | | |
|---------------|--|
| 1. Any number | references a specific line number |
| 2. +n | denoting the <u>n</u> th subsequent line |
| 3. -n | denoting the <u>n</u> th previous line |
| 4. /<string>/ | referring to the next line in the file containing the indicated string of characters |

- | | |
|----------------------------|--|
| 5. -/<string>/ | references a previous line containing the indicated string |
| 6. + (^ on some terminals) | denotes the first line of the file |
| 7. + (l on some terminals) | denotes the last line of the file |
| 8. null | stay at current line |

Many of the editor directives require <target> information. This tells the editor to operate on the "current" line and all other lines in the file up to the line referenced by the <target>. In cases where a <target> is required, leaving it null will make the <target> default to 1, meaning only the current line will be affected by the directive. All of the following are valid <target> designators:

- | | |
|-----------------|---|
| 1. an integer n | indicates that <u>n</u> lines should be affected by the <u>edit</u> operation |
| 2. #n | denotes the line number of the last line to be affected |
| 3. /<string>/ | denotes the next line in the file containing the specified character string |
| 4. -/<string>/ | references a previous line containing the indicated string |
| 5. + | denotes all lines up to the top of the file |
| 6. + | references all lines down to the bottom or last line of the file |
| 7. ± <u>n</u> | Indicates that <u>n</u> lines should be affected and in which direction from the current line |
| 8. (null) | defaults to 1 and only the current line is affected |

As we have seen, the form <target> is used to specify a range of lines to which the directive will apply. The directive will be applied to each line, starting with the line specified by <line> and continuing until the target is reached.

If a string <target> is specified, the directive will apply to successive lines of text until a line containing the string is reached. Processing proceeds downward in the file unless the target is preceded by a "-" (minus sign), indicating that processing is to occur upward (toward

the first line) in the file. Targets may also be preceded by a plus sign (indicating downward movement). If a line number target is specified, processing begins at <line> and proceeds toward the target line number. Some examples of <target>s are

```
2
+10
-3
/STRING/
+/STRING TARGET/
-/BACKWARD DISPLACEMENT TO A STRING/
+*ANY DELIMITER WILL WORK FOR STRING*
++EVEN PLUS SIGNS WILL WORK+
#23.000
```

Any "/<string>/" descriptor may be postfixed with a column number immediately after the delimiter which indicates that the preceding string must begin in the column specified to be found. If the column specified is not in the range of the ZONE in effect, the request will be ignored. Some examples are

```
/IDENT/11
/PROGRAM/77
*LABEL*2
.COMMENT.30
```

Environment Directives

H[EADER] <columns>

MEANING:

A line of <columns> headings will be displayed. The heading is of the form "123456789012..." to indicate the column number. Columns for which tab stops are set will contain a minus character instead of the normal digit. If a column count is given, it becomes the default count such that if just "H" is typed afterwards, that number of columns will be printed.

EXAMPLES:

HEADER 72

Display column number headings for 72 columns.

H 30

Display column numbers for 30 columns.

NU[MBERS] [OFF|ON]

MEANING:

The line number flag is turned off or on. If the flag is off, then line numbers will never be printed. If neither "OFF" nor "ON" is specified, then the flag will be toggled from its current state.

EXAMPLES:

NUMBERS OFF

Turn line number printing off.

NU ON

Turn it back on.

NU

Toggle from "on" to "off" or from "off" to "on".

REN[UMBER]

MEANING:

The "renumber" directive will renumber all of the lines in the current edit file. Lines in the renumbered file will start with line number "1.00" and will have an increment of "1.00". The line which was "current" before the command will still be the current line after the command (although its number will probably have been changed).

EXAMPLES:

RENUMBER

Renumber the lines in the current working file.

REN

SET <name> = '<char>'

MEANING:

SET is used to define certain special characters or symbols. The <name>s which may be set are:

TAB - the tab character,

FILL - the tab fill character,

EOL - the end of line character which may be used to separate several commands on a single line.

LINO - the line number flag character which is used to indicate that a target is a specific line number.

The default values are: TAB and EOL are 'null'.

FILL is "space"

LINO is "#"

EXAMPLES:

SET TAB = ':'

Set the tab character to semicolon.

SET TAB = ''

Disable tabbing by setting the tab character to null.

SET FILL = ' '

Set the tab fill character to a blank.

SET EOL = '\$'

Set the EOL character to \$.

SET LINO = '@'

Set the line number target escape

TAB [<columns>]

MEANING:

Used to set the tab stops. All previous tab stops are cleared.

If no columns are specified then the only action is to clear all tab settings. Any TAB characters occurring beyond the last tab stop are left in the text. The maximum number of TAB stops allowed is 20.

EXAMPLES:

TAB 11, 18, 30

Set tab stops at columns 11, 18, and 30.

TAB 7 72

Set tab stops for a FORTRAN program.

TAB

Clear all tab stops.

V[ERIFY] [OFF|ON]

MEANING:

The verify flag is turned "on" or "off". The verify flag is used by the directives "CHANGE", and "NEXT" (and several others) to display their results. If neither "ON" nor "OFF" is specified, then the flag will be toggled from its current state.

EXAMPLES:

VERIFY OFF

Turn verification off.

V ON

Turn it back on.

X

MEANING:

"X" is the cursor control command. Any time this command is entered, the editor will issue the 6 special character string previously set up. See "Adapting to your System" for details.

EXAMPLES:

X

Output cursor control string.

Z[ONE] [C1, C2]

MEANING:

ZONE is used to restrict all sub-string searches (FIND, CHANGE, <target>s, etc.) to columns "C1" to "C2" inclusive. Any substrings beginning outside those columns will not be detected. If C1 and C2 are not specified, then the zones will be reset to their defaults (columns 1 and 136).

EXAMPLES:

ZONE 11, 29

Restrict searches to columns 11 through 29.

ZONE

Search columns 1 through 136.

System Directives

LOG

MEANING:

Exit the editor.

EXAMPLES:

LOG

S[TOP]

MEANING:

Same as "LOG".

EXAMPLES:

STOP

S

"Current Line" Movers

B[OTTOM]

MEANING:

Move to the last line in the file and make it the current line.

EXAMPLES:

BOTTOM

Make the last line of the file the current line.

B

F[IND] <target> [<occurrence>]

MEANING:

Move the current line pointer to the line specified by <target> and make it the current line. If the VERIFY flag (see VERIFY) is on, the line will be printed. If <occurrence> is specified (an unsigned integer or an asterisk), the directive will be repeated <occurrence> times. An asterisk means all occurrences of the <target> will be found until the bottom or the top of the file is reached. If the target is not reached, the current line pointer will not be moved.

EXAMPLES:

FIND /STRING/

Find the next line containing the string "STRING".

F /A VERY LONG STRING/
F/THREE LINES/ 3

Find the next three lines containing the string "THREE LINES".

F/ALL TILL BOTTOM OF FILE/ *

Find all following occurrences of the indicated string.

F-/PROGRAM/7 *

Find all previous lines which contain the characters "PROGRAM" beginning in column seven.

N[EXT] [<target> [<occurrence>]]

MEANING:

The line specified by the target is made the current line. If the VERIFY flag is on, the line will be printed. If <occurrence> is specified, it must be an unsigned integer. It indicates which next occurrence of a line containing the target is to be made the current line. If the target is not reached, the current line pointer will be positioned at the bottom of the file (top of the file for a negative <target>). If no target is specified, the next line will be made the current line.

EXAMPLES:

NEXT 5

Make the fifth following line the current line.

N

Make the next line the current line.

N-10

Make the tenth previous line current.

N/STRING TARGET/

Make the next line containing "STRING TARGET" to be the current line.

N/THIRD OCCURRENCE/ 3

Make the third line containing the indicated string the current line.

T[OP]

MEANING:

The first line of the file becomes the current line

Edit Directives

A[PPEND] /<string>/ [<target>]

MEANING:

Append the specified <strings> just beyond the last character of the current line (and to successive until the target is reached). If the string is postfixed with a column number, then append the string beginning at the specified column (rather than at the end of the line). Any characters previously in the line following the specified column will be lost.

EXAMPLES:

APPEND ./

Append a period to the end of the current line.

A *HELLO* 2

Append the word "HELLO" to the end of the current line and to the end of the next line.

A/SEQUENCE/73 *END*7

Append the word "SEQUENCE" starting in column 73 of the current line and successive lines until a line containing the characters "END" beginning in column seven is found.

C[HANGE] /<string>₁/<string>₂/ [<target> [<occurrence>]]

MEANING:

Replace the string specified by <string>₁ with the string specified by <string>₂. If no <target> is specified, only the current line

is affected. The slashes represent any nonblank delimiter character. <occurrence> is used to specify which occurrence of <string>₁ is to be replaced in each line. It is either an unsigned integer or an asterisk, "*" signifying that all occurrences of the substring <string>₁ are to be replaced with <string>₂. By default, only the first occurrence will be changed. Note that if <occurrence> is specified, and if changes are to occur to the current line only, then the target should be a 1 (one).

EXAMPLES:

CHANGE /THIS/THAT/

Replace the first occurrence of "THIS" in the current line with "THAT".

C/A/B/ 1*

Change all occurrences of "A" in the current line to "B".

C /FIRST/LAST/10

Change the first occurrence of "FIRST" to "LAST" in the current line and also in the nine following lines.

C /NEW/OLD/ /A TARGET/

Change the first occurrence of "NEW" to "OLD" in each line down through the line containing the string "A TARGET".

C ,A,, -10 *

Remove all "A"s in the current line and in the nine preceding lines.

C*HELLO*

Delete the character string "HELLO" from the current line.

CO[PY] [<destination-target> [<range-target>]]

MEANING:

The current line and successive lines until the <range-target> is reached are copied so that they follow the line specified by destination-target. The default destination-target is 1, thereby causing a copy of the current line to be placed after the next line. The default <range-target> is 1, thereby copying only one line. After the directive is executed, the current line pointer will be positioned at the new position of the last line copied. Some lines may be renumbered after a copy.

EXAMPLES:

CO #18

Put a copy of the current line after line 18.

COPY #3 4

Copy four lines beginning with the current line and place them after line 3.

CO /HELLO DOLLY/ +/END OF RANGE/

After the next line which contains the string "HELLO DOLLY" place a copy of each line starting with the current line through the line containing "END OF RANGE".

D[DELETE] [<target>]

MEANING:

The current line (and successive lines until the target is reached) is deleted. After the directive is executed, the current line will be the line following the last line deleted.

EXAMPLES:

DELETE 5

Delete five lines (the current line and the next four lines).

D

Delete the current line.

D /STRING/

Delete lines from the current line through the next line that contains the string "STRING".

EXP[AND] [<target>]

MEANING:

The current tab character is expanded within all lines, beginning with the current line (and down to and including the line specified by target). Since tabs are normally expanded as lines are inserted into the file, this directive is primarily of use when one has forgotten to define a tab character.

EXAMPLES:

EXPAND 100

Expand 100 lines starting with the current line.

EXP

Expand the current line.

I[NSERT]

MEANING:

The editor will enter the buffered input mode, prompting with line numbers (unless line numbers have been disabled, see the "NUMBERS"

directive) and insert the lines below the current line. Buffered input continues until a line beginning with the breakpoint character (pound sign) in column one is received. The characters following the breakpoint character are treated as an editor directive. The editor will try to choose an insertion increment sufficient to insert at least 10 lines, or, if that is not possible, the smallest increment possible. The current line pointer is positioned at the last line inserted. It should be noted that the editor may renumber text lines following the inserted text if the inserted line numbers overlap line numbers previously in the file.

EXAMPLES:

INSERT
I

Accept line input after the current line.

I[INSERT] <text>

MEANING:

The text (sequence of characters) which immediately follows the separator (or blank) after the directive name will be inserted as a separate line below the current line of the file. The line inserted becomes the current line. It should be noted that the editor may renumber text lines following the inserted text if the inserted line numbers overlap line numbers previously in the file.

EXAMPLES:

I THIS BELOW THE CURRENT LINE OF THE FILE
INSERT EVERYTHING AFTER THE FIRST BLANK

MO[VE] [<destination-target> [<range-target>]]

MEANING:

The current line (and successive lines until the <range-target> is reached) is moved so that it follows the line specified by <destination-target>. The default <destination-target> is 1, thereby moving the current line after the next line in the file.

The default <range-target> is 1, thereby moving only one line. After the directive is executed the current line pointer will be positioned at the new position of the last line moved. Some lines may be renumbered after a move.

EXAMPLES:

MOVE 3	Move the current line down three lines.
MO #1 /TARGET STRING/	Insert the current line and all lines down through the line containing "TARGET STRING" after line 1.
MO -/PROGRAM/ 5	Move five lines (including the current line) up within the file so that they follow a line containing the character "PROGRAM".
MO #10 -5	Move the current line and the four previous lines below line 10.

O[VERLAY] [<delimiter>]

MEANING:

The current line is printed, then a line of input is accepted from the terminal (the overlay line). The overlay line will be positioned directly beneath the line printed out. Each character of the overlay that is different from the <delimiter> character (default is a blank) will replace the corresponding character in the current line. The overlaid line will be printed if verify is "ON".

EXAMPLES:

```
OVERLAY
25.00 = THIP IS THE CORRENT LUNE.
OVERLAY      S      U      I
25.00 = THIS IS THE CURRENT LINE.
```

O[VERLAY] <d><text>

MEANING:

This directive is similar to the previous form of the OVERLAY directive with these differences: (1) The current line is not printed. (2) The remainder of the directive line is taken as the overlay text.

EXAMPLES:

OVERLAY---AT----- (-----)-----

25.00 = THAT IS THE (CURRENT) LINE

P[RINT] [<target>]

MEANING:

Beginning with the current line, lines are printed until the line specified by target is reached. By default, only the current line will be printed.

EXAMPLES:

P	Print the current line.
PRINT 5	Print five lines starting with the current line.
P -10	Print the current line and the nine previous lines.
PRINT *STRING*	Print all lines down through the next line containing "STRING".
P -/STRING/	Print all lines up through the next previous line containing "STRING".

R[EPLACE] [<target>]

MEANING:

A "DELETE" from the current line through the <target> line is performed. The editor then enters the buffered input mode, putting the new lines into the area vacated. It is not necessary to enter the same number of lines as were deleted. The line numbers of the lines inserted will probably not be the same as those deleted. The current line pointer will be positioned at the last line inserted. By default, only the current line will be deleted.

EXAMPLES:

R	Replace the current line.
REPLACE 10	Replace ten lines starting with the current line.
R /TARGET STRING/	Replace all lines from the current line through the line containing "TARGET STRING".

=<text>

MEANING:

The "=" directive replaces the current line with the text supplied. The replacement text begins with the first character following the equals sign. The current line pointer is not moved.

EXAMPLES:

= THIS IS THE REPLACEMENT TEXT.

(null)

MEANING:

The null directive (i.e., just a carriage return) prints the current line.

Tape Directives

GAP

MEANING:

Issue a string of 40 null characters to the tape unit.

EXAMPLES:

GAP

Puts leader or gap on tape.

READ

MEANING:

This directive will read the next file present on the loaded tape. All lines read will be appended to the end of the current work file and the last line read will become the "current" line.

EXAMPLE:

READ

Get the next file from the tape.

SAVE

MEANING:

Write the entire current file out to the tape unit. The file is written with no line numbers and is terminated with an ASCII "control Z" character.

EXAMPLE:

SAVE

Puts the current file on tape.

W[RITE] [<target>]

MEANING:

All lines from the current line through the target line are written out to tape. The same format as SAVE is used.

EXAMPLES:

WRITE

Write the current line to tape.

W #20

Write all lines from the current line through line #20 out to the tape unit.

USING TAPE

The TSC Text Editing System contains four tape directives. These can be used with most types of tape devices including paper tape and Kansas City Standard cassette systems such as the SWTPC AC-30 tape system. When using SAVE or WRITE the text is sent out to the tape in the following form:

TEXT...(carriage return)...TEXT...(C.R.)"control Z".

The "control Z" is the end of file marker. Note that there are no line numbers put on the tape, and also no line feeds or null characters, so the file is not suitable for displaying on a terminal in this form.

When a tape is read back into the editor using the READ command, line numbers are automatically put back in. The tape will be read until a "control Z" is found.

The TSC Text Editing System provides delay after tape turn on for cassettes and also issues a control character for each "tape on" "tape off", "record on", and "record off". To set these characters to those needed by the tape system, see "Adapting to Your System".

The fourth tape directive is the GAP command. This is used to output 40 nulls to the tape. This can be used to put leader or trailer on the tape, or a gap between files.

ADAPTING TO YOUR SYSTEM

The TSC Text Editing System is assembled to run directly on a Motorola MIKBUG based 6800 system, such as the SWTPC 6800. It can, however, be converted with great ease to run on most other 6800 systems. The following information should be all that is necessary in most cases. Read through everything carefully before doing any conversion to be sure everything is understood. This section also contains information for MIKBUG machines to allow setting up the TAPE control characters and the cursor control characters for the X command. There is also information for setting memory end.

1. **MEMORY END** - The editor is assembled with memory end set at the end of an 8K system (\$1FFF). To change this for your system put the end of memory address in locations \$0212 and \$0213. The memory end should not be set below address \$17FF, the end of the first 6K block of memory.
2. **INPUT CHARACTER ROUTINE** - This routine is called by the editor and requires the following: The character input should be returned in the A accumulator, the B accumulator should remain unchanged, as well as the index (X) register. The editor is assembled referencing MIKBUG's input routine. To substitute the address of your input routine, enter it at location \$0207 and \$0208.
3. **OUTPUT CHARACTER ROUTINE** - This routine is called by the editor and performs the following: The character in the A accumulator is output to the terminal. The B accumulator and X registers remain unchanged. The editor is assembled referencing MIKBUG's output routine. To substitute the address of your output routine, enter it at location \$020A and \$020B. Both the input and output routines should be written as sub-routines, meaning the last instruction should be RTS.
4. **FULL DUPLEX** - If your terminal requires software echo of typed characters and your input routine does not provide this, change the JMP (7E) at location \$0206 to a JSR (BD).

5. INPUT CHARACTER FROM TAPE - If you use a tape system connected to a different I/O port than the terminals or use a different routine to handle tape operations, you can set the address of this routine at locations \$020D and \$020E. The character should be in A, while B and X should remain unchanged. The editor is assembled with MIKBUG's regular input routine.
6. OUTPUT CHARACTER TO TAPE - As explained above, if necessary to use a separate output routine for tape operations, set the address at locations \$0210 and \$0211. Character should be in A keeping B and X unchanged. The editor is assembled with the address of MIKBUG's regular output routine.
7. BACKSPACE CHARACTER - The backspace character ("control" H) is stored at location \$049D. It is presently a 08. Change as desired.
8. DELETE CHARACTER - The delete character is stored in location \$04AC. It is currently a \$18 ("control" X). This may be changed as desired.
9. BELL CHARACTER - When the input buffer is overflowed (more than 136 characters typed) the editor outputs a "bell" character (07). This is stored at location \$04C2 and may be changed as desired.
10. TAPE TURN ON DELAY - The editor is assembled to delay approximately 2 seconds after tape turn on before outputting data. This may be set as needed at location \$00B6. It is currently 06. Setting it to 00 is zero delay, with larger values being longer delays.
11. TAPE CONTROL CHARACTERS - The editor outputs four special characters to control tape operations. These characters are presently set to nulls (00). To set these to your systems requirements, change the following locations.

TAPE ON (PLAY)	-	\$00B7
TAPE OFF (PLAY)	-	\$00B8
TAPE ON (RECORD)	-	\$00B9
TAPE OFF (RECORD)	-	\$00BA
12. CURSOR CONTROL CHARACTERS - The editor outputs a string of six characters upon execution of the "X" command. These can be set to special cursor

or other control characters. They are presently nulls (00). Set desired characters at location \$0982 through \$0987.

13. RETURN TO MONITOR ADDRESS - Upon execution of STOP, S, or LOG, the editor returns to the system monitor. The editor is assembled with the address of MIKBUG. Enter the address of your monitor at location \$098C and \$098D.

SYSTEM CHARACTERISTICS

1. The maximum line number is 9999.99. If more than 9,999 lines are entered, the line number counter will turn over (go back to 0), therefore, the editor should not be used with files of 10,000 lines or longer. (This is not really a limitation since 10,000 null lines (line number followed by a carriage return) uses up 40K of memory!)
2. The input buffer will hold 136 characters. If more than 136 characters are typed, they will be ignored and a "bell" character output to the terminal. To terminate the line it is necessary to type the backspace character and then a carriage return.
3. Setting the "tab" character and the "fill" character the same will defeat the TAB feature. There is no logical reason to do this.
4. Setting the "EOL" character will allow using multiple commands at a time. Insert and overlay cannot be followed by other commands. An example of EOL use (with EOL set to "\$") is:

↑D2\$P10\$T

This sequence will delete the first 2 lines of the file, then print the next 10 lines, and finally, return the pointer to the top of the file.

MORE EXAMPLES

NEW FILE:

```

1.00 ==** THIS IS A TEST PROGRAM **
2.00 =
3.00 =;ORG;$0100
4.00 =START;LDX;$$FFF;SET COUNT
5.00 =#3
3.00 =;ORG;$0100
#SET TAB=';'
#TAB 9 16 26
#SET EDL='$'
#EXP !
#T $ P 5
1.00 ==** THIS IS A TEST PROGRAM **
2.00 =
3.00 =          ORG      $0100
4.00 =START     LDX      $$FFF      SET COUNT
#I
5.00 =;LDA A;$$40;SET SECOND COUNT
6.00 =LOOP;DEC A;;DEC THE COUNT
7.00 =;BNE;LOOP;LOOPTILL DONE
8.00 =;DEX;;DEC THE X REG
9.00 =;BNE;LOOP1;LOOP;TIL DONE
10.00 =;LDA A;#";SET UP CHAR
11.00 =;JSR;OUTCHR;OUTPUT IT
12.00 =DONE;BRA;DONE;LOOP FOREVER
13.00 =#T

```

#NU

#P!

** THIS IS A TEST PROGRAM **

```

          ORG      $0100
START     LDX      $$FFF      SET COUNT
          LDA A    $$40      SET SECOND COUNT
LOOP      DEC A      DEC THE COUNT
          BNE      LOOP      LOOPTILL DONE
          DEX          DEC THE X REG
          BNE      LOOP1     LOOP;TIL DONE
          LDA A    #";      SET UP CHAR
          JSR      OUTCHR     OUTPUT IT
DONE      BRA      DONE      LOOP FOREVER

```

#NU

#

12.00 =DONE BRA DONE LOOP FOREVER

#-,FFF, C ;FF ;FFF

4.00 =START LDX \$FFFF SET COUNT

#H 45 \$ P

12345678-012345-789012345-7890123456789012345

4.00 =START LDX \$FFFF SET COUNT


```

#1 0
5.00 = LDA A $$40 SET SECOND COUNT
OVERLAY LOOP1
5.00 =LOOP1 LDA A $$40 SET SECOND COUNT
#C;LOOP1;LOOP2; !
5.00 =LOOP2 LDA A $$40 SET SECOND COUNT
9.00 = BNE LOOP2 LOOP;TIL DONE

```

```

#^ C ;LOOP ;LOOP1; !
6.00 =LOOP1 DEC A DEC THE COUNT
7.00 = BNE LOOP1 LOOPTILL DONE
12.00 =DONE BRA DONE LOOP1FOREVER
#C;1;
12.00 =DONE BRA DONE LOOP FOREVER
#7C;PT;P T
7.00 = BNE LOOP1 LOOP TILL DONE
#A, ! ,
7.00 = BNE LOOP1 LOOP TILL DONE !

```

```

#B
#I ;END
#

```

```

13.00 = END
#R

```

```

13.00 =
14.00 =;END
15.00 =
16.00 =* THATS ALL *
17.00 =#^P!
1.00 =** THIS IS A TEST PROGRAM **
2.00 =
3.00 = ORG $0100
4.00 =START LDX $$FFFF SET COUNT
5.00 =LOOP2 LDA A $$40 SET SECOND COUNT
6.00 =LOOP1 DEC A DEC THE COUNT
7.00 = BNE LOOP1 LOOP TILL DONE !
8.00 = DEX DEC THE X REG
9.00 = BNE LOOP2 LOOP;TIL DONE
10.00 = LDA A #'@ SET UP CHAR
11.00 = JSR OUTCHR OUTPUT IT
12.00 =DONE BRA DONE LOOP FOREVER
13.00 =
14.00 = END
15.00 =
16.00 =* THATS ALL *

```

```

#LOG

```

```

*

```


LOCN B1 B2 B3

```

*
*   COPYRIGHT 1977 (C) BY
*
*   TECHNICAL SYSTEMS CONSULTANTS
*   BOX 2574
*   W. LAFAYETTE, INDIANA 47906
*   (317) 742 7509
*

```

* EXTERNAL EQUATES

```

01FF  STACK  EQU  $01FF
E0D0  MIKBUG  EQU  $E0D0
0023  PROMPT  EQU  $23
000D  CRGRET  EQU  $D
0018  DELCOD  EQU  $18
0008  BACKSP  EQU  $8
0007  BELL    EQU  $7

```

ORG \$40

* TEMPORARY STORAGE

```

0040  TEMP    RMB  2
0042  XSAVE   RMB  2
0044  BUFFNT  RMB  2
0046  BUFSAV  RMB  2
0048  CURPOS  RMB  2
004A  NEWPOS  RMB  2
004C  SRCHPT  RMB  2
004E  STRNGB  RMB  2
0050  STRNGE  RMB  2
0052  STRGB1  RMB  2
0054  STRGE1  RMB  2
0056  STRPNT  RMB  2
0058  SPCPT1  RMB  2
005A  SPCPT2  RMB  2
005C  LASTNO  RMB  2
005E  ZONE1   RMB  2
0060  ZONE2   RMB  2
0062  ZONBUF  RMB  2
0064  CHGPNT  RMB  2
0066  CHGEND  RMB  2
0068  OCRTMP  RMB  2
006A  NUMFLG  RMB  1
006B  VERFLG  RMB  1
006C  MSLFLG  RMB  1
006D  PSTZFL  RMB  1
006E  OCRCNT  RMB  2
0070  FNDFLG  RMB  1
0071  STRCN1  RMB  1
0072  OVRBEG  RMB  1
0073  OVREND  RMB  1
0074  NOCURL  RMB  1

```


LOCN B1 B2 B3

0075		LINFLG	RMB	1
0076		NXTFLG	RMB	1
0077		ALLFLG	RMB	1
0078		OCRFLG	RMB	1
0079		CHGONF	RMB	1
007A		AFPCOL	RMB	1
007B		STRCNT	RMB	1
007C		INCAMT	RMB	1
007D		BMPFLG	RMB	1
007E		EQUFLG	RMB	1
007F		INLMFL	RMB	1
0080		MOVFLG	RMB	1
0081		REPFLG	RMB	1
0082		TMPCHR	RMB	1
0083		CHKFLG	RMB	1
0084		SNGLIN	RMB	1
0085		CHGFLG	RMB	1
0086		STRCN2	RMB	1
0087		FNONFL	RMB	1
0088		LSTFLG	RMB	1
0089		DECCNT	RMB	1
008A		PRNFLG	RMB	1
008B		CPYDRC	RMB	1
008C		DRCTN	RMB	1
008D		CHRCNT	RMB	2
008F		INZFLG	RMB	1
0090		NUMBER	RMB	3
0093		TRGLIN	RMB	2
0095		DELIM	RMB	1
0096		HEDCNT	RMB	1
0097		FILBEG	RMB	2
0099		FILEND	RMB	2
009B		TABPNT	RMB	2
009D		TABBUF	RMB	20
00B1	00	TABEND	FCB	0
00B2	00	TABCH	FCB	0
00B3	20	FILL	FCC	' '
00B4	23	LINO	FCC	'#'
00B5	00	EOL	FCB	0
00B6	06	DELAY	FCB	6
00B7	00	TONCH	FCB	0
00B8	00	TOFCH	FCB	0
00B9	00	RONCH	FCB	0
00BA	00	ROFCH	FCB	0
00BB		BUFFER	RMB	136

ORG \$0200

* PROGRAM STARTS HERE

0200 7E 03 55 START JMP INITLZ

LOCN B1 B2 B3
0203 7E 03 83 RESTRT JMP PEDIT

* EXTERNAL I-O ROUTINES

0206	7E	E1	AC	INCH	JMP	\$E1AC	
0209	7E	E1	D1	OUTCH	JMP	\$E1D1	
020C	7E	E1	AC	TINCH	JMP	\$E1AC	TAPE INPUT ROUTINE
020F	7E	E1	D1	TOUCH	JMP	\$E1D1	TAPE OUTPUT ROUTINE
0212	1F	FF		MEMEND	FDB	\$1FFF	

* COMMAND TABLE

0214	41	TABLE	FCC	'APPEND'
0215	50			
0216	50			
0217	45			
0218	4E			
0219	44			
021A	00		FCB	0
021B	12 DD		FDB	APPEND
021D	41		FCC	'A'
021E	00		FCB	0
021F	12 DD		FDB	APPEND
0221	42		FCC	'BOTTOM'
0222	4F			
0223	54			
0224	54			
0225	4F			
0226	4D			
0227	00		FCB	0
0228	09 8E		FDB	BOTTOM
022A	42		FCC	'B'
022B	00		FCB	0
022C	09 8E		FDB	BOTTOM
022E	43		FCC	'CHANGE'
022F	48			
0230	41			
0231	4E			
0232	47			
0233	45			
0234	00		FCB	0
0235	0D CB		FDB	CHANGE
0237	43		FCC	'COPY'
0238	4F			
0239	50			
023A	59			
023B	00		FCB	0
023C	0F F3		FDB	COPY
023E	43		FCC	'CO'
023F	4F			
0240	00		FCB	0
0241	0F F3		FDB	COPY

LOCN	B1	B2	B3			
0243	43			FCC	'C'	
0244	00			FCB	0	
0245	0D	CB		FDB	CHANGE	
0247	44			FCC	'DELETE'	
0248	45					
0249	4C					
024A	45					
024B	54					
024C	45					
024D	00			FCB	0	
024E	0C	8A		FDB	DELETE	
0250	44			FCC	'D'	
0251	00			FCB	0	
0252	0C	8A		FDB	DELETE	
0254	45			FCC	'EXPAND'	
0255	58					
0256	50					
0257	41					
0258	4E					
0259	44					
025A	00			FCB	0	
025B	12	5C		FDB	EXPAND	
025D	45			FCC	'EXP'	
025E	58					
025F	50					
0260	00			FCB	0	
0261	12	5C		FDB	EXPAND	
0263	46			FCC	'FIND'	
0264	49					
0265	4E					
0266	44					
0267	00			FCB	0	
0268	09	CF		FDB	CFIND	
026A	46			FCC	'F'	
026B	00			FCB	0	
026C	09	CF		FDB	CFIND	
026E	47			FCC	'GAP'	
026F	41					
0270	50					
0271	00			FCB	0	
0272	14	13		FDB	GAP	
0274	48			FCC	'HEADER'	
0275	45					
0276	41					
0277	44					
0278	45					
0279	52					
027A	00			FCB	0	
027B	11	1B		FDB	HEADER	
027D	48			FCC	'H'	
027E	00			FCB	0	

LOCN	B1	B2	B3		
027F	11	1B		FDB	HEADER
0281	49			FCC	'INSERT'
0282	4E				
0283	53				
0284	45				
0285	52				
0286	54				
0287	00			FCB	0
0288	0A	CB		FDB	INSERT
028A	49			FCC	'I'
028B	00			FCB	0
028C	0A	CB		FDB	INSERT
028E	4C			FCC	'LOG'
028F	4F				
0290	47				
0291	00			FCB	0
0292	09	89		FDB	EXIT
0294	4D			FCC	'MOVE'
0295	4F				
0296	56				
0297	45				
0298	00			FCB	0
0299	0F	D4		FDB	MOVE
029B	4D			FCC	'MO'
029C	4F				
029D	00			FCB	0
029E	0F	D4		FDB	MOVE
02A0	4E			FCC	'NEXT'
02A1	45				
02A2	58				
02A3	54				
02A4	00			FCB	0
02A5	09	CC		FDB	NEXT
02A7	4E			FCC	'NUMBERS'
02A8	55				
02A9	4D				
02AA	42				
02AB	45				
02AC	52				
02AD	53				
02AE	00			FCB	0
02AF	09	1D		FDB	NUMSET
02B1	4E			FCC	'NU'
02B2	55				
02B3	00			FCB	0
02B4	09	1D		FDB	NUMSET
02B6	4E			FCC	'N'
02B7	00			FCB	0
02B8	09	CC		FDB	NEXT
02BA	4F			FCC	'OVERLAY'
02BB	56				
02BC	45				
02BD	52				

LOCN B1 B2 B3

02BE	4C			
02BF	41			
02C0	59			
02C1	00			
02C2	0F	21	FCB	0
02C4	4F		FDB	OVERLA
			FCC	'0'
02C5	00		FCB	0
02C6	0F	21	FDB	OVERLA
02C8	50		FCC	'PRINT'
02C9	52			
02CA	49			
02CB	4E			
02CC	54			
02CD	00		FCB	0
02CE	08	77	FDB	PRINT
02D0	50		FCC	'P'
02D1	00		FCB	0
02D2	08	77	FDB	PRINT
02D4	52		FCC	'READ'
02D5	45			
02D6	41			
02D7	44			
02D8	00		FCB	0
02D9	14	2A	FDB	READ
02DB	52		FCC	'RENUMBER'
02DC	45			
02DD	4E			
02DE	55			
02DF	4D			
02E0	42			
02E1	45			
02E2	52			
02E3	00		FCB	0
02E4	06	A5	FDB	RENUMB
02E6	52		FCC	'REN'
02E7	45			
02E8	4E			
02E9	00		FCB	0
02EA	06	A5	FDB	RENUMB
02EC	52		FCC	'REPLACE'
02ED	45			
02EE	50			
02EF	4C			
02F0	41			
02F1	43			
02F2	45			
02F3	00		FCB	0
02F4	0C	87	FDB	REPLAC
02F6	52		FCC	'R'
02F7	00		FCB	0
02F8	0C	87	FDB	REPLAC
02FA	53		FCC	'SAVE'

LOCN B1 B2 B3

02FB 41

02FC 56

02FD 45

02FE 00

02FF 13 9D

0301 53

0302 45

0303 54

0304 00

0305 11 CC

0307 53

0308 54

0309 4F

030A 50

030B 00

030C 09 89

030E 53

FCB 0
FDB SAVE
FCC 'SET'FCB 0
FDB SET
FCC 'STOP'FCB 0
FDB EXIT
FCC 'S'

030F 00

0310 09 89

0312 54

0313 41

0314 42

0315 00

0316 10 D0

0318 54

0319 4F

031A 50

031B 00

031C 09 9D

031E 54

FCB 0
FDB EXIT
FCC 'TAB'FCB 0
FDB TAB
FCC 'TOP'FCB 0
FDB TOP
FCC 'T'

031F 00

0320 09 9D

0322 56

0323 45

0324 52

0325 49

0326 46

0327 59

0328 00

0329 09 63

032B 56

FCB 0
FDB TOP
FCC 'VERIFY'FCB 0
FDB VERSET
FCC 'V'

032C 00

032D 09 63

032F 57

0330 52

0331 49

0332 54

0333 45

0334 00

0335 13 AD

0337 57

FCB 0
FDB VERSET
FCC 'WRITE'FCB 0
FDB WRITE
FCC 'W'

LOCN B1 B2 B3

0338 00	FCB	0
0339 13 AD	FDB	WRITE
033B 58	FCC	'X'
033C 00	FCB	0
033D 09 78	FDB	XCNTRL
033F 5A	FCC	'ZONE'
0340 4F		
0341 4E		
0342 45		
0343 00	FCB	0
0344 11 7E	FDB	SZONE
0346 5A	FCC	'Z'
0347 00	FCB	0
0348 11 7E	FDB	SZONE
034A 00	FCB	0

* NEW FILE STRING

034B 4E	NWFSTR	FCC	'NEW FILE:'
034C 45			
034D 57			
034E 20			
034F 46			
0350 49			
0351 4C			
0352 45			
0353 3A			
0354 04	FCB	4	

* INITIALIZATION ROUTINE

0355 8E 01 FF	INITLZ	LDS	#STACK	
0358 CE 14 92		LDX	#BEGPNT	
035B DF 97		STX	FILBEG	
035D DF 99		STX	FILEND	SET END ALSO
035F CE 02 03		LDX	#RESTRT	
0362 FF A0 48		STX	\$A048	SET RESTART ADDRESS
0365 CE 00 01		LDX	#1	SET ZONES
0368 DF 5E		STX	ZONE1	
036A CE 01 36		LDX	##0136	
036D DF 60		STX	ZONE2	
036F 86 46		LDA A	#70	SET UP HEADER
0371 97 96		STA A	HEDCNT	
0373 4F		CLR A		
0374 97 9D		STA A	TABBUF	FIX STORAGE
0376 4A		DEC A		
0377 97 8F		STA A	INZFLG	
0379 97 6A		STA A	NUMFLG	TURN ON NUMBERS
037B 97 6B		STA A	VERFLG	ALSO VERIFICATION
037D CE 03 4B		LDX	#NWFSTR	POINT TO STRING
0380 BD 04 83		JSR	PSTRNG	OUTPUT IT

LOCN B1 B2 B3

* RESTART ENTRY POINT

0383	DE	97	PEDIT	LDX	FILBEG	POINT TO BEGIN
0385	DF	48		STX	CURPOS	
0387	7F	00 6C		CLR	MSLFLG	

* MAIN EDIT LOOP

038A	BE	01 FF	EDIT	LDS	#STACK	SETUP STACK POINTER
038D	DF	40		STX	TEMP	SAVE POINTER
038F	DE	48		LDX	CURPOS	SET CURRENT POSITION
0391	DF	4A		STX	NEWPOS	SAVE IT
0393	CE	00 6D		LDX	#PSTZFL	
0396	4F			CLR A		CLEAR ACC.
0397	A7	00	EDIT1	STA A	0,X	CLEAR OUT LOCATION
0399	08			INX		BUMP POINTER
039A	BC	00 8E		CPX	#CHRCNT+1	
039D	26	F8		BNE	EDIT1	
039F	DE	40		LDX	TEMP	RESTORE POINTER
03A1	96	8F		LDA A	INZFLG	INITIALIZE?
03A3	27	06		BEQ	EDIT2	
03A5	7F	00 8F		CLR	INZFLG	
03A8	7E	0A EA		JMP	INSERT4	GO INSERT LINES
03AB	96	6C	EDIT2	LDA A	MSLFLG	MULTIPLE ST. PER LINE?
03AD	26	22		BNE	EDIT55	
03AF	97	8E		STA A	CHRCNT+1	
03B1	CE	00 8B		LDX	#BUFFER	SET POINTER
03B4	BD	04 4E		JSR	PCRLF	
03B7	86	23		LDA A	#PROMPT	SETUP PROMPT
03B9	BD	02 09		JSR	OUTCH	OUTPUT IT
03BC	BD	04 99	EDIT3	JSR	INCHAR	
03BF	27	C9		BEQ	EDIT	
03C1	A7	00	EDIT4	STA A	0,X	PUT CHAR IN BUFFER
03C3	81	0D		CMP A	#CRGRET	IS IT A C.R.
03C5	27	05		BEQ	EDIT5	
03C7	BD	04 8B		JSR	BUFLIM	IS BUFFER FULL?
03CA	20	F0		BRA	EDIT3	REPEAT
03CC	CE	00 8B	EDIT5	LDX	#BUFFER	RESTORE POINTER
03CF	DF	44		STX	BUFPNT	
03D1	7F	00 6C	EDIT55	CLR	MSLFLG	
03D4	BD	04 D2		JSR	FINDL	PROCESS LINE INFO
03D7	4F			CLR A		
03D8	97	75		STA A	LINFLG	CLEAR FLAS
03DA	97	8C		STA A	DRCTN	
03DC	DF	4A		STX	NEWPOS	SAVE POINTER
03DE	DE	44		LDX	BUFPNT	
03E0	BD	04 92		JSR	SKIPSP	SKIP SPACES
03E3	DF	44		STX	BUFPNT	SAVE POINTER
03E5	81	3D		CMP A	#'=	IS IT AN '='?
03E7	26	08		BNE	EDIT56	
03E9	08			INX		BUMP POINTER
03EA	DF	44		STX	BUFPNT	

LOCN B1 B2 B3					
03EC CE 0A A5		LDX	#EQUALS		
03EF 20 44		BRA	EDIT85	GO TO IT	
03F1 BD 06 63	EDIT56	JSR	TSTEND	TEST END	
03F4 26 05		BNE	EDIT58		
03F6 CE 08 77		LDX	#PRINT	POINT TO PRINT	
03F9 20 3A		BRA	EDIT85		
03FB DF 40	EDIT58	STX	TEMP		
03FD CE 02 14		LDX	#TABLE	POINT TO TABLE	
0400 DF 9B	EDIT6	STX	TABPNT	SAVE IT	
0402 6D 00		TST	0,X	IS IT NULL?	
0404 27 23		BEQ	EDIT8		
0406 A1 00		CMP A	0,X	CHECK CHARACTER	
0408 26 0C		BNE	EDIT7	ARE THEY EQUAL?	
040A DE 44		LDX	BUFPNT	RESTORE POINTER	
040C 0B		INX		BUMP IT	
040D A6 00	EDIT65	LDA A	0,X	GET NEXT CHAR.	
040F DF 44		STX	BUFPNT	SAVE POINTER	
0411 DE 9B		LDX	TABPNT		
0413 0B		INX		BUMP THE TABLE PNTR	
0414 20 EA		BRA	EDIT6		
0416 0B	EDIT7	INX		BUMP THE POINTER	
0417 6D 00		TST	0,X	IS IT NULL?	
0419 26 FB		BNE	EDIT7		
041B 0B		INX		BUMP POINTER 3 TIMES	
041C 0B		INX			
041D 0B		INX			
041E 6D 00		TST	0,X	END OF TABLE?	
0420 27 1F		BEQ	ERROR	REPORT ERROR	
0422 09		DEX			
0423 DF 9B		STX	TABPNT	SAVE THE POINTER	
0425 DE 40		LDX	TEMP		
0427 20 E4		BRA	EDIT65	REPEAT	
0429 0B	EDIT8	INX		BUMP THE POINTER	
042A EE 00		LDX	0,X	GET ADDRESS	
042C 8C 0A C8		CPX	#INSERT	IS IT INSERT?	
042F 26 04		BNE	EDIT85		
0431 96 7F		LDA A	INLMFL		
0433 26 0A		BNE	EDIT88		
0435 BD 08 21	EDIT85	JSR	TSTOVR	LIMITS?	
0438 26 25		BNE	NOTFND		
043A 4F		CLR A		CLEAR FLAGS	
043B 97 72		STA A	OVRBEG		
043D 97 73		STA A	OUREND		
043F 6E 00	EDIT88	JMP	0,X	GO TO IT	

* ERROR ROUTINE

0441 CE 04 4C	ERROR	LDX	#ERRSTR	POINT TO STRING
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* PRINT ERROR MESSAGE

0444 8D 3D	PREROR	BSR	PSTRNG	
0446 7F 00 6C		CLR	MSLFLG	CLEAR FLAG
0449 7E 03 8A		JMP	EDIT	RETURN

LOCN B1 B2 B3

044C 3F ERRSTR FCC '?'

044D 04 FCB 4

* PRINT CARRIAGE RETURN & LINE FEED

044E DF 42	PCRLF	STX	XSAVE	SAVE POINTER
0450 CE 04 58	LDX	#CRLFST		POINT TO STRING
0453 BD 30	BSR	PDATA1		
0455 DE 42	LDX	XSAVE		RESTORE STRING
0457 39	RTS			RETURN

0458 0D CRLFST FCB \$D,\$A,0,0,0,0,4

0459 0A

045A 00

045B 00

045C 00

045D 00

045E 04

* REPORT LINE NOT FOUND

045F CE 04 64	NOTFND	LDX	#NOFSTR	POINT TO STRING
0462 20 E0		BRA	PREROR	

0464 4E NOFSTR FCC 'NO SUCH LINE'

0465 4F

0466 20

0467 53

0468 55

0469 43

046A 48

046B 20

046C 4C

046D 49

046E 4E

046F 45

0470 04

FCB 4

* REPORT SYNTAX ERROR

0471 CE 04 76	SYNERR	LDX	#SYNSTR	POINT TO STRING
0474 20 CE		BRA	PREROR	

0476 53 SYNSTR FCC 'SYNTAX ERROR'

0477 59

0478 4E

0479 54

047A 41

047B 58

047C 20

LOCN B1 B2 B3
 047D 45
 047E 52
 047F 52
 0480 4F
 0481 52
 0482 04

FCB 4

* PRINT STRING ROUTINE

0483	BD	C9	PSTRNG	BSR	PCRLF	OUT C.R. L.F.
0485	A6	00	PDATA1	LDA A	0,X	GET CHAR.
0487	81	04		CMP A	#4	IS IT TERM?
0489	27	0D		BEQ	SKIPS2	
048B	BD	02 09		JSR	OUTCH	OUTPUT IT
048E	08			INX		BUMP POINTER
048F	20	F4		BRA	PDATA1	

* SKIP ALL SPACES

0491	08		SKIPSA	INX		
0492	A6	00	SKIPSP	LDA A	0,X	GET A CHAR.
0494	81	20		CMP A	#'	IS IT A SPACE?
0496	27	F9		BEQ	SKIPSA	REPEAT
0498	39		SKIPS2	RTS		RETURN

* INPUT AND CHECK CHARACTER

0499	BD	02 06	INCHAR	JSR	INCH	GET CHAR
049C	81	08	INCHR1	CMP A	#BACKSP	IS IT A BACKSPACE?
049E	26	0B		BNE	INCHR3	
04A0	8C	00 BB		CPX	#BUFFER	BUFFER BEGINNING?
04A3	27	15		BEQ	INCHR4	
04A5	09			DEX		DEC THE POINTER
04A6	7A	00 8E		DEC	CHRCNT+1	
04A9	20	EE		BRA	INCHAR	
04AB	81	18	INCHR3	CMP A	#DELCOD	IS IT A DELETE?
04AD	27	0B		BEQ	INCHR4	
04AF	81	1F		CMP A	##1F	IS IT CONTROL?
04B1	22	04		BHI	INCH35	
04B3	81	0D		CMP A	#CRGRET	IS IT A C.R.?
04B5	26	E2		BNE	INCHAR	
04B7	7C	00 8E	INCH35	INC	CHRCNT+1	INC CHAR. COUNT
04BA	39		INCHR4	RTS		RETURN

* CHECK FOR BUFFER OVERFLOW

04BB	08		BUFLIM	INX		BUMP THE POINTER
04BC	8C	01 43		CPX	#BUFFER+136	
04BF	26	F9		BNE	INCHR4	
04C1	86	07	OVER	LDA A	#BELL	LOAD UP BELL
04C3	BD	02 09		JSR	OUTCH	OUTPUT IT

LOCN B1 B2 B3			
04C6 BD 02 06	JSR	INCH	GET NEW CHAR.
04C9 B1 08	CMP A	#BACKSP	IS IT BACKSPACE?
04CB 26 F4	BNE	OVER	
04CD 09	DEX		DEC THE POINTER
04CE 7A 00 8E	DEC	CHRCNT+1	
04D1 39	RTS		RETURN

* PROCESS LINE ROUTINE

04D2 BD BE	FINDL	BSR	SKIPSP	SKIP SPACES
04D4 B1 3D	CMP A	#'	'='	IS IT '='?
04D6 27 0A	BEQ	FINDLO		
04D8 7C 00 75	INC	LINFLG		SET FLAG
04DB BD 07 3B	JSR	CLASS		CLASSIFY CHAR.
04DE C1 01	CMP B	#1		IS IT A LETTER
04E0 23 03	BLS	FINDL2		
04E2 DE 4A	FINDLO	LDX	NEWPOS	SET POINTER
04E4 39	FINDL1	RTS		RETURN
04E5 27 23	FINDL2	BEQ	FIND1	
04E7 20 14	BRA	FIND		

* TARGET ENTRY POINT

04E9 BD 03	FINDT	BSR	FINDTO	
04EB DF 93	STX	TRGLIN		SAVE TARGET POS.
04ED 39	RTS			RETURN
04EE 7F 00 8C	FINDTO	CLR	DRCTN	
04F1 BD 07 3B	JSR	SKPCLS		
04F4 C1 01	CMP B	#1		IS IT A LETTER?
04F6 23 03	BLS	FINDT2		
04FB 7E 04 71	FINDT1	JMP	SYNERR	REPORT SYNTAX ERROR
04FB 27 7D	FINDT2	BEQ	FIND62	
04FD 7F 00 8C	FIND	CLR	DRCTN	CLEAR DIRECTION
0500 91 B4	CMP A	LINO		IS IT LINE NUMBER
0502 26 2E	BNE	FIND2		
0504 08	INX			BUMP THE POINTER
0505 BD 04 92	JSR	SKIPSP		
0508 DF 44	STX	BUFPNT		
050A BD 07 55	FIND1	JSR	BCDCON	
050D DF 40	STX	TEMP		SAVE POINTER
050F DE 4A	LDX	NEWPOS		
0511 96 90	LDA A	NUMBER		GET NUMBER
0513 A1 00	CMP A	0,X		COMPARE IT
0515 26 0A	BNE	FIND14		
0517 96 91	LDA A	NUMBER+1		GET NEXT NUM.
0519 A1 01	CMP A	1,X		COMPARE
051B 26 04	BNE	FIND14		
051D 96 92	LDA A	NUMBER+2		
051F A1 02	CMP A	2,X		
0521 24 03	FIND14	BCC	FIND16	
0523 7A 00 8C	DEC	DRCTN		SET DIRECTION
0526 DE 40	FIND16	LDX	TEMP	RESTORE POINTER
0528 BD 07 AB	JSR	FNDNUM		FIND LINE NUMBER
052B 27 B7	BEQ	FINDL1		

LOCN B1 B2 B3				
052D D7 74		STA B	NOCURL	
052F 7E 07 F0		JMP	BAKONE	
0532 BD 06 63	FIND2	JSR	TSTEND	
0535 26 0A		BNE	FIND3	
0537 7D 00 76		TST	NXTFLG	CHECK FLAG
053A 27 A6		BEQ	FINDL0	
053C DE 4A		LDX	NEWPOS	SET POINTER
053E 7E 08 0F		JMP	UPONE	UP ONE LINE
0541 81 21	FIND3	CMP A	#'!	IS IT A '!'?
0543 26 08		BNE	FIND4	
0545 08		INX		BUMP THE POINTER
0546 DF 44		STX	BUFPNT	
0548 DE 99		LDX	FILEND	SET POINTER
054A 7E 07 F0		JMP	BAKONE	BACKUP ONE LINE
054D 81 5E	FIND4	CMP A	#'?	IS IT A '?'?
054F 26 09		BNE	FIND5	
0551 7A 00 8C		DEC	DRCTN	SET DIRECTION
0554 08		INX		BUMP THE POINTER
0555 DF 44		STX	BUFPNT	
0557 DE 97		LDX	FILBEG	SET POINTER TO BEGIN
0559 39		RTS		RETURN
055A 81 2B	FIND5	CMP A	#'+	IS IT A '+'?
055C 27 07		BEQ	FIND6	
055E 81 2D		CMP A	#'-'	IS IT A '-'?
0560 26 47		BNE	FIND7	
0562 7A 00 8C		DEC	DRCTN	DEC DIRECTION
0565 08	FIND6	INX		BUMP THE POINTER
0566 BD 07 38		JSR	SKPCLS	SKIP SPACES
0569 C1 01		CMP B	#1	IS IT NUMBER?
056B 27 0D		BEQ	FIND62	
056D 23 3A		BLS	FIND7	
056F D6 75		LDA B	LINFLG	TEST FLAG
0571 27 85		BEQ	FINDT1	
0573 BD 07 A3		JSR	CLRNUM	
0576 DE 4A		LDX	NEWPOS	SET POINTER
0578 20 1A		BRA	FIND66	
057A BD 07 55	FIND62	JSR	BCDCON	CONVERT NUMBER
057D DE 4A		LDX	NEWPOS	SET POINTER
057F 7D 00 75		TST	LINFLG	CHECK FLAG
0582 26 08		BNE	FIND65	
0584 BD 08 38	FIND63	JSR	TSTNUM	IS IT ZERO?
0587 27 1F		BEQ	FIND67	
0589 BD 08 2A		JSR	DECNUM	DEC NUMBER
058C BD 08 38	FIND65	JSR	TSTNUM	TEST NUMBER
058F 27 17		BEQ	FIND67	
0591 BD 08 2A		JSR	DECNUM	
0594 BD 06 C3	FIND66	JSR	NXTLIN	GOTO NEXT LINE
0597 BD 08 21		JSR	TSTOVR	CHECK LIMITS
059A 27 F0		BEQ	FIND65	
059C 96 73		LDA A	OVREND	BEGINNING?
059E 26 08		BNE	FIND67	
05A0 BD 08 38		JSR	TSTNUM	
05A3 26 03		BNE	FIND67	
05A5 7C 00 7F		INC	INLMFL	
05A8 39	FIND67	RTS		RETURN

LOCN B1 B2 B3					
05A9 8D 4F	FIND7	BSR	SETDEL	SET DELIMITER	
05AB 8D 6D	FIN702	BSR	ZONE	SET ZONE	
05AD DE 4A		LDX	NEWPOS	SET POINTER	
05AF BD 06 C3		JSR	NXTLIN	GO TO NEXT	
05B2 08	FIND71	INX		BUMP POINTER 3 TIMES	
05B3 08		INX			
05B4 08		INX			
05B5 BD 06 5A	FIN711	JSR	FIXZON	CHECK FOR POSTZONE	
05B8 BD 08 2A	FIND72	JSR	DECNUM	DEC COLUMN COUNT	
05BB 27 22		BEQ	FIND75		
05BD C6 0D		LDA B	#CRGRET		
05BF E1 00		CMP B	0,X	TEST FOR C.R.	
05C1 27 03		BEQ	FIND73		
05C3 08		INX		BUMP THE POINTER	
05C4 20 F2		BRA	FIND72	REPEAT	
05C6 96 85	FIND73	LDA A	CHGFLG	CHECK IF CHANGE	
05C8 26 DE		BNE	FIND67		
05CA 08		INX		BUMP THE POINTER	
05CB 9C 99		CPX	FILEND	END OF FILE ?	
05CD 27 06		BEQ	*+08		
05CF 09		DEX			
05D0 96 85	FIND74	LDA A	CHGFLG		
05D2 26 D4		BNE	FIND67		
05D4 09		DEX		DEC THE POINTER	
05D5 BD 06 C3		JSR	NXTLIN		
05D8 BD 08 21		JSR	TSTOVR	CHECK LIMITS	
05DB 26 17		BNE	FIND77		
05DD 20 D3		BRA	FIND71		
05DF BD 06 5A	FIND75	JSR	FIXZON	FIX UP ZONE	
05E2 BD 06 CD		JSR	STRING	PROCESS STRING	
05E5 7D 00 70		TST	FNDFLG	FIND IT?	
05E8 27 E6		BEQ	FIND74		
05EA 5F		CLR B			
05EB 96 85		LDA A	CHGFLG		
05ED 26 05		BNE	FIND77		
05EF BD 07 F6		JSR	BAKON2		
05F2 DF 93		STX	TRGLIN	SAVE TARGET POINTER	
05F4 39	FIND77	RTS		RETURN	
05F5 86 01	FIND78	LDA A	#1	SET FLAG	
05F7 97 73		STA A	OVREND		
05F9 39		RTS		RETURN	

* SET UP DELIMITERS

05FA 97 95	SETDEL	STA A	DELIM	SAVE DELIMITER
05FC 5F		CLR B		
05FD 08		INX		BUMP THE POINTER
05FE DF 4E		STX	STRNGB	SAVE BEGINNING
0600 A6 00	SETDE2	LDA A	0,X	GET A CHARACTER
0602 8D 5F		BSR	TSTEND	
0604 27 08		BEQ	SETDE4	
0606 91 95		CMP A	DELIM	IS IT A DELIMITER?
0608 27 04		BEQ	SETDE4	
060A 08		INX		BUMP THE POINTER

LOCN	B1	B2	B3			
060B	5C			INC B		BUMB COUNTER
060C	20	F2		BRA	SETDE2	REPEAT
060E	DF	50		SETDE4	STX	STRNGE
0610	D7	7B		STA B	STRCNT	
0612	8D	4F		BSR	TSTEND	
0614	27	01		BEQ	SETDE5	
0616	08			INX		BUMP THE POINTER
0617	DF	44		SETDE5	STX	BUFNT
0619	39			RTS		RETURN

* SET UP ZONE

061A	BD	07	3B	ZONE	JSR	CLASS	GO CLASSIFY CHAR.
061D	7F	00	6D		CLR	PSTZFL	CLEAR FLAG
0620	C1	01			CMP B	#1	IS IT A NUMBER
0622	26	17			BNE	ZONE3	
0624	BD	07	55		JSR	BCDCON	CONVERT NUMBER
0627	8D	1B			BSR	CMPZN1	CHECK ZONE1
0629	25	10			BCS	ZONE3	
062B	8D	22			BSR	CMPZN2	CHECK ZONE2
062D	22	0C			BHI	ZONE3	
062F	7C	00	6D		INC	PSTZFL	SET FLAG
0632	96	90			LDA A	NUMBER	PUT NUM IN ZONE BUF.
0634	97	62			STA A	ZONBUF	
0636	96	91			LDA A	NUMBER+1	
0638	97	63			STA A	ZONBUF+1	
063A	39				RTS		RETURN
063B	96	5E		ZONE3	LDA A	ZONE1	PUT ZONE1 IN BUF.
063D	97	62			STA A	ZONBUF	
063F	96	5F			LDA A	ZONE1+1	
0641	97	63			STA A	ZONBUF+1	
0643	39				RTS		RETURN

* COMPARE ZONE1 TO NUMBER

0644	D6	90		CMPZN1	LDA B	NUMBER	GET NUMBER
0646	D1	5E			CMP B	ZONE1	CHECK
0648	26	04			BNE	CMPZ14	
064A	D6	91			LDA B	NUMBER+1	
064C	D1	5F			CMP B	ZONE1+1	
064E	39			CMPZ14	RTS		RETURN

* COMPARE ZONE2 TO NUMBER

064F	D6	90		CMPZN2	LDA B	NUMBER	GET NUMBER
0651	D1	60			CMP B	ZONE2	CHECK
0653	26	04			BNE	CMPZ24	
0655	D6	91			LDA B	NUMBER+1	
0657	D1	61			CMP B	ZONE2+1	
0659	39			CMPZ24	RTS		RETURN

LOCN B1 B2 B3

* PUT CORRECT ZONE IN NUMBER

```

065A 96 62    FIXZON  LDA A  ZONBUF    GET ZONE
065C 97 90          STA A  NUMBER    PUT IN NUMBER
065E 96 63          LDA A  ZONBUF+1
0660 97 91          STA A  NUMBER+1
0662 39                RTS            RETURN

```

* TEST TERMINATOR (C.R. OR EOL)

```

0663 81 0D    TSTEND  CMP A  #CRGRET  IS IT C.R.?
0665 27 02          BEQ    TSTEN2
0667 91 B5          CMP A  EOL
0669 39    TSTEN2  RTS            RETURN

```

* BUMP NUMBER BY 1, .1, OR .01

```

066A 86 01    BMPNUM  LDA A  #1
066C D6 7C          LDA B  INCAMT    CHECK AMOUNT
066E 27 0C          BEQ    INCNUM
0670 2A 02          BPL    BMPNU4
0672 86 10          LDA A  ##10    SET BUMP
0674 9B 92    BMPNU4  ADD A  NUMBER+2  ADD IN
0676 19          DAA            ADJUST IT
0677 97 92          STA A  NUMBER+2  SAVE
0679 25 01          BCS    INCNUM
067B 39                RTS            RETURN

```

* INCREMENT NUMBER BY ONE

```

067C 86 01    INCNUM  LDA A  #1    SET UP ONE
067E 5F          CLR B
067F 9B 91          ADD A  NUMBER+1  ADD IN ONE
0681 19          DAA            ADJUST IT
0682 97 91          STA A  NUMBER+1  SAVE IT
0684 17          TBA
0685 99 90          ADC A  NUMBER
0687 19          DAA            ADJUST NUMBER
0688 97 90          STA A  NUMBER
068A 39                RTS            RETURN

```

* PUT NUMBER AT X

```

068B 96 90    PUTNUM  LDA A  NUMBER    GET NUMBER
068D A7 00          STA A  0,X    SAVE IT
068F 96 91          LDA A  NUMBER+1
0691 A7 01          STA A  1,X
0693 96 92          LDA A  NUMBER+2
0695 A7 02          STA A  2,X
0697 39                RTS            RETURN

```


LOCN B1 B2 B3

* GET NUMBER FROM X

0698	A6	00	GETNUM	LDA A	0,X	GET NUMBER
069A	97	90		STA A	NUMBER	SAVE IT
069C	A6	01		LDA A	1,X	
069E	97	91		STA A	NUMBER+1	
06A0	A6	02		LDA A	2,X	
06A2	97	92		STA A	NUMBER+2	
06A4	39			RTS		RETURN

* RENUMBER FILE

06A5	BD	09	A4	RENUMB	JSR	TFORCR	
06A8	DE	97		LDX	FILBEG	SET POINTER	
06AA	7F	00	7C	RENUM1	CLR	INCACT	
06AD	BD	07	A3		JSR	CLRNUM	CLEAR NUMBER
06B0	8D	B8		RENUM2	BSR	BMPNUM	BUMP NUMBER
06B2	8D	D7			BSR	PUTNUM	SAVE IT
06B4	BD	08	0F		JSR	UPONE	
06B7	96	73		LDA A	OVREND	HIT LIMIT?	
06B9	27	F5		BEQ	RENUM2	REPEAT	
06BB	96	83		LDA A	CHKFLG	CHECK FLAG	
06BD	27	01		BEQ	RENUM4		
06BF	39			RTS		RETURN	
06C0	7E	08	A2	RENUM4	JMP	PRINT6	RETURN

* GO TO NEXT LINE

06C3	96	8C		NXTLIN	LDA A	DRCTN	CHECK DIRECTION
06C5	2B	03			BMI	NXTLI2	
06C7	7E	08	0F		JMP	UPONE	MOVE UP ONE
06CA	7E	07	F0	NXTLI2	JMP	BAKONE	MOVE BACK ONE

* PROCESS STRING ROUTINE

06CD	7F	00	70	STRING	CLR	FNDFLG	CLEAR FLAG
06D0	D6	7B			LDA B	STRCNT	
06D2	26	06			BNE	STRIN1	
06D4	7C	00	70		INC	FNDFLG	FOUND NULL STRING
06D7	DF	5C			STX	LASTNO	SAVE POINTER
06D9	39				RTS		RETURN
06DA	C6	0D		STRIN1	LDA B	#CRGRET	
06DC	DF	4C			STX	SRCHPT	SAVE POINTER
06DE	DF	5C			STX	LASTNO	SAVE POINTER
06E0	DE	4E			LDX	STRNGB	POINT TO BEGIN
06E2	DF	56		STRIN2	STX	STRPNT	SAVE POINTER
06E4	A6	00			LDA A	0,X	GET A CHARACTER
06E6	DE	4C			LDX	SRCHPT	RESTORE POINTER
06E8	E1	00		STRIN3	CMP B	0,X	C. RET. ?
06EA	27	1D			BEQ	STRIN4	
06EC	A1	00			CMP A	0,X	COMP. CHAR.

LOCN	B1	B2	B3			
06EE	27	1D		BEQ	STRIN5	
06F0	7D	00	6D	TST	PSTZFL	POST ZONE?
06F3	26	14		BNE	STRIN4	
06F5	7D	00	70	TST	FNDFLG	FOUND?
06F8	26	22		BNE	STRIN6	
06FA	08			INX		BUMP THE POINTER
06FB	DF	5C		STX	LASTNO	SAVE IT
06FD	36			PSH A		SAVE ACC.
06FE	37			PSH B		
06FF	BD	06	7C	JSR	INCNUM	INC NUMBER
0702	BD	06	4F	JSR	CMPZN2	CHECK ZONE2
0705	33			PUL B		RESTORE ACC
0706	32			PUL A		
0707	23	DF		BLS	STRIN3	
0709	7F	00	70	CLR	FNDFLG	CLEAR FLAG
070C	39			RTS		RETURN
070D	08			STRIN5 INX		
070E	DF	4C		STX	SRCHPT	SAVE IT
0710	7C	00	70	INC	FNDFLG	SET FLAG
0713	DE	56		LDX	STRPNT	POINT TO STRING
0715	08			INX		BUMP THE POINTER
0716	9C	50		CPX	STRNGE	END OF STRING?
0718	27	0F		BEQ	STRIN7	
071A	20	C6		BRA	STRIN2	
071C	DE	5C		STRIN6 LDX	LASTNO	RESTORE POINTER
071E	08			INX		
071F	BD	06	7C	JSR	INCNUM	BUMP NUMBER
0722	BD	06	4F	JSR	CMPZN2	CHECK ZONE
0725	23	A6		BLS	STRING	
0727	20	E0		BRA	STRIN4	
0729	D6	7B		STRIN7 LDA B	STRCNT	GET COUNT
072B	27	08		STRIN8 BEQ	STRIN9	
072D	37			PSH B		SAVE
072E	BD	06	7C	JSR	INCNUM	FIX COL
0731	33			PUL B		
0732	5A			DEC B		DEC COUNT
0733	26	F6		BNE	STRIN8	
0735	DE	5C		STRIN9 LDX	LASTNO	
0737	39			RTS		RETURN

* SKIP AND CLASSIFY

0738	BD	04	92	SKPCLS	JSR	SKIPSP
------	----	----	----	--------	-----	--------

* CLASSIFY CHARACTER

073B	DF	44	CLASS	STX	BUFPNT	SAVE POINTER
073D	A6	00		LDA A	0,X	GET CHARACTER
073F	5F			CLR B		
0740	81	2F		CMP A	##2F	CHECK IF NUMBER
0742	23	10		BLS	CLASS4	
0744	81	39		CMP A	#'9	
0746	22	02		BHI	CLASS2	

LOCN B1 B2 B3

0748 5C		INC B		SHOW NUMBER
0749 39		RTS		RETURN
074A 81 40	CLASS2	CMP A	##40	CHECK IF LETTER
074C 23 06		BLS	CLASS4	
074E 81 5A		CMP A	#'Z	
0750 22 02		BHI	CLASS4	
0752 C6 02		LDA B	#2	SHOW LETTER
0754 39	CLASS4	RTS		RETURN

* CONVERT ASCII TO BCD

0755 8D 4C	BCDCON	BSR	CLRNUM	CLEAR NUMBER
0757 8D E2	BCDC01	BSR	CLASS	CLASSIFY CHAR.
0759 C1 01		CMP B	#1	IS IT A NUMBER?
075B 27 07		BEQ	BCDC02	
075D 81 2E		CMP A	#'.	IS IT A '.'?
075F 27 17		BEQ	BCDC05	
0761 DF 44	BCDC15	STX	BUFPNT	SAVE POINTER
0763 39		RTS		RETURN
0764 08	BCDC02	INX		BUMP THE POINTER
0765 84 0F		AND A	##0F	MASK ASCII
0767 C6 04		LDA B	#4	SET COUNTER
0769 78 00 91	BCDC04	ASL	NUMBER+1	
076C 79 00 90		ROL	NUMBER	SHIFT EVERYTHING LEFT
076F 5A		DEC B		DEC THE COUNTER
0770 26 F7		BNE	BCDC04	
0772 9B 91		ADD A	NUMBER+1	ADD IN NUMBER
0774 97 91		STA A	NUMBER+1	
0776 20 DF		BRA	BCDC01	
0778 C6 02	BCDC05	LDA B	#2	SET COUNTER
077A D7 89		STA B	DECCNT	
077C 08	BCDC06	INX		BUMP THE POINTER
077D 8D BC		BSR	CLASS	CLASSIFY CHAR.
077F C1 01		CMP B	#1	IS IT NUMBER?
0781 27 04		BEQ	BCDC65	
0783 4F		CLR A		
0784 09		DEX		DEC THE POINTER
0785 20 02		BRA	BCDC67	
0787 84 0F	BCDC65	AND A	##0F	MASK ASCII
0789 C6 04	BCDC67	LDA B	#4	SET COUNTER
078B 78 00 92	BCDC07	ASL	NUMBER+2	
078E 5A		DEC B		
078F 26 FA		BNE	BCDC07	
0791 9B 92		ADD A	NUMBER+2	
0793 97 92		STA A	NUMBER+2	
0795 7A 00 89		DEC	DECCNT	DEC COUNTER
0798 26 E2		BNE	BCDC06	
079A 08	BCDC08	INX		BUMP THE POINTER
079B 8D 9E		BSR	CLASS	CLASSIFY CHAR.
079D C1 01		CMP B	#1	IS IT NUMBER?
079F 27 F9		BEQ	BCDC08	
07A1 20 BE		BRA	BCDC15	

LOCN B1 B2 B3

* CLEAR NUMBER ROUTINE

07A3 4F	CLRNUM	CLR A	CLEAR ACC.
07A4 97 90		STA A NUMBER	
07A6 97 91		STA A NUMBER+1	CLEAR ALL OUT
07A8 97 92		STA A NUMBER+2	
07AA 39		RTS	RETURN

* FIND NUMBERED LINE

07AB D6 90	FNDNUM	LDA B	NUMBER	GET DIGIT
07AD 96 91		LDA A	NUMBER+1	
07AF DE 97		LDX	FILBEG	SET POINTER TO BEGIN
07B1 9C 99	FNDNU1	CPX	FILEND	END OF FILE?
07B3 26 05		BNE	FNDNU4	
07B5 7C 00 73		INC	OVREND	SET ERROR FLAG
07B8 5C	FNDNU2	INC B		
07B9 39		RTS		RETURN
07BA E1 00	FNDNU4	CMP B	0,X	COMPARE DIGIT
07BC 22 1C		BHI	FNDNU5	
07BE 26 F8		BNE	FNDNU2	
07C0 A1 01		CMP A	1,X	COMP NEXT DIGIT
07C2 22 16		BHI	FNDNU5	
07C4 26 F2		BNE	FNDNU2	
07C6 D6 92		LDA B	NUMBER+2	NEXT DIGIT
07C8 E1 02		CMP B	2,X	CHECK DIGIT
07CA 22 0E		BHI	FNDNU5	
07CC 26 EA		BNE	FNDNU2	
07CE 7D 00 84		TST	SNGLIN	
07D1 26 05		BNE	FNDNU5	
07D3 7D 00 83		TST	CHKFLG	
07D6 26 E0		BNE	FNDNU2	
07D8 5F	FNDNU5	CLR B		
07D9 39		RTS		RETURN
07DA 7D 00 83	FNDNU5	TST	CHKFLG	
07DD 26 F9		BNE	FNDNU5	
07DF 8D 05		BSR	FNDNU5	FIND C.R.
07E1 D6 90		LDA B	NUMBER	RESTORE NUM
07E3 08		INX		BUMP THE POINTER
07E4 20 CB		BRA	FNDNU1	REPEAT

* FIND THE NEXT CARRIAGE RETURN

07E6 36	FNDNU5	PSH A		SAVE ACC.
07E7 86 0D		LDA A	#CRGRET	
07E9 08	FNDNU2	INX		BUMP THE POINTER
07EA A1 00		CMP A	0,X	CHECK FOR C.R.
07EC 26 FB		BNE	FNDNU2	
07EE 32		PUL A		RESTORE ACC.
07EF 39		RTS		RETURN

* MOVE BACK ONE LINE

LOCN B1 B2 B3

07F0 9C 97	BAKONE	CPX	FILBEG	
07F2 27 17		BEQ	BAKON6	
07F4 C6 01		LDA B	#1	SET COUNTER
07F6 09	BAKON2	DEX		DEC THE POINTER
07F7 9C 97		CPX	FILBEG	BEGINNING?
07F9 27 0D		BEQ	BAKON5	
07FB A6 00		LDA A	0,X	GET A CHAR.
07FD 81 0D		CMP A	#CRGRET	IS IT C.R.?
07FF 26 F5		BNE	BAKON2	
0801 5A		DEC B		DEC THE COUNTER
0802 2A F2		BPL	BAKON2	
0804 08		INX		BUMP THE POINTER
0805 C6 01		LDA B	#1	
0807 39	BAKON4	RTS		RETURN
0808 5D	BAKON5	TST B		
0809 27 FC		BEQ	BAKON4	
080B 7C 00 72	BAKON6	INC	OVRBEG	SET ERROR FLAG
080E 39		RTS		RETURN

* MOVE UP ONE LINE

080F 9C 99	UPONE	CPX	FILEND	END OF FILE?
0811 26 06		BNE	UPONE2	
0813 C6 01	UPONE1	LDA B	#1	SET ERROR FLAG
0815 D7 73		STA B	OVREND	
0817 20 D7		BRA	BAKONE	
0819 8D CB	UPONE2	BSR	FND CRT	FIND NEXT C.R.
081B 08		INX		BUMP THE POINTER
081C 9C 99		CPX	FILEND	END?
081E 27 F3		BEQ	UPONE1	
0820 39		RTS		RETURN

* TEST FOR OVER END LIMITS

0821 7D 00 72	TSTOVR	TST	OVRBEG	BEGINNING?
0824 26 03		BNE	TSTOV2	
0826 7D 00 73		TST	OVREND	END?
0829 39	TSTOV2	RTS		RETURN

* DECREMENT NUMBER BY ONE

082A 86 99	DECNUM	LDA A	\$\$99	
082C 16		TAB		SET UP \$9999
082D 9B 91		ADD A	NUMBER+1	ADD IN
082F 19		DAA		ADJUST IT
0830 97 91		STA A	NUMBER+1	SAVE
0832 17		TBA		
0833 99 90		ADC A	NUMBER	
0835 19		DAA		
0836 97 90		STA A	NUMBER	

LOCN B1 B2 B3

* TEST NUMBER FOR ZERO

0838 96 90	TSTNUM	LDA A	NUMBER	CHECK IF ZERO
083A 26 02		BNE	TSTNU2	
083C 96 91		LDA A	NUMBER+1	
083E 39	TSTNU2	RTS		RETURN

* VERIFY LINE ROUTINE

083F DF 4A	VERLIN	STX	NEWPOS	SAVE POINTER
0841 BD 07 E6		JSR	FND CRT	
0844 DF 5A		STX	SPCPT2	SAVE POSITION
0846 4F		CLR A		
0847 97 8D		STA A	CHRCNT	
0849 09	VERLI1	DEX		DEC POINTER
084A 09		DEX		
084B 09		DEX		
084C 09	VERL12	DEX		DEC THE POINTER
084D E6 00		LDA B	0,X	CHECK CHAR
084F C1 0D		CMP B	#CRGRET	IS IT C.R.?
0851 27 09		BEQ	VERL15	
0853 E6 03		LDA B	3,X	CHECK
0855 C1 20		CMP B	#'	IS IT A SPACE?
0857 26 03		BNE	VERL15	
0859 4C		INC A		
085A 20 F0		BRA	VERL12	
085C 97 8E	VERL15	STA A	CHRCNT+1	SAVE COUNT
085E 08		INX		
085F 08		INX		
0860 08		INX		BUMP POINTER
0861 08		INX		
0862 DF 58		STX	SPCPT1	
0864 BD 0D 43		JSR	DELCHR	DELETE SPACES
0867 DE 4A		LDX	NEWPOS	
0869 96 6B		LDA A	VERFLG	CHECK FLAG
086B 27 05		BEQ	VERLI2	
086D 8D 40		BSR	OUTLIN	OUTPUT LINE
086F BD 07 F0		JSR	BAKONE	BACKUP ONE LINE
0872 DF 48	VERLI2	STX	CURPOS	SAVE POINTER
0874 DF 4A		STX	NEWPOS	
0876 39		RTS		RETURN

* PRINT ROUTINE

0877 8D 2F	PRINT	BSR	TSTEMP	
0879 DE 44		LDX	BUFPNT	SET POINTER
087B BD 04 E9		JSR	FINDT	FIND TARGET
087E DE 4A	PRINTO	LDX	NEWPOS	SET POINTER
0880 7C 00 8A		INC	PRNFLG	SET FLAG
0883 DF 48		STX	CURPOS	SAVE IT
0885 9C 93	PRINT1	CPX	TRGLIN	TARGET LINE?
0887 26 03		BNE	PRIN12	

LOCN	B1	B2	B3				
0889	7F	00	8A		CLR	PRNFLG	CLEAR FLAG
088C	8D	21		PRIN12	BSR	OUTLIN	
088E	96	8A			LDA A	PRNFLG	CHECK FLAG
0890	27	0B			BEQ	PRINT5	
0892	96	8C			LDA A	DRCTN	CHECK DIRECTION
0894	27	EF			BEQ	PRINT1	
0896	09				DEX		DEC POINTER TWICE
0897	09				DEX		
0898	BD	07	F0		JSR	BAKONE	MOVE BACK ONE
089B	20	E8			BRA	PRINT1	
089D	BD	07	F0	PRINT5	JSR	BAKONE	MOVE BACK ONE
08A0	DF	48			STX	CURPOS	SAVE POINTER
08A2	BD	09	B5	PRINT6	JSR	TSTMSL	
08A5	7E	03	8A		JMP	EDIT	RETURN

* TEST IF FILE EMPTY

08A8	DE	97		TSTEMP	LDX	FILBEG	
08AA	9C	99			CPX	FILEND	
08AC	27	F4			BEQ	PRINT6	
08AE	39				RTS		

* OUTPUT ONE LINE

08AF	BD	04	4E	OUTLIN	JSR	PCRLF	
08B2	96	6A			LDA A	NUMFLG	
08B4	26	06			BNE	OUTL15	
08B6	8D	15			BSR	OUTSPC	OUTPUT SPACE
08B8	08				INX		BUMP THE POINTER
08B9	08				INX		
08BA	20	03			BRA	OUTLI2	
08BC	8D	16		OUTL15	BSR	OUTBCD	OUTPUT LINE NO.
08BE	09				DEX		
08BF	08			OUTLI2	INX		
08C0	A6	00			LDA A	0,X	GET A CHAR.
08C2	81	0D			CMP A	#CRGRET	IS IT C.R.?
08C4	27	05			BEQ	OUTLI4	
08C6	BD	02	09		JSR	OUTCH	OUTPUT IT
08C9	20	F4			BRA	OUTLI2	REPEAT
08CB	08			OUTLI4	INX		BUMP THE POINTER
08CC	39				RTS		RETURN

* OUTPUT A SPACE

08CD	86	20		OUTSPC	LDA A	#'	LOAD UP SPACE
08CF	BD	02	09		JSR	OUTCH	OUTPUT IT
08D2	0C				CLC		
08D3	39				RTS		RETURN

* OUTPUT A BCD NUMBER

LOCN	B1	B2	B3			
08D4	96	6A		OUTBCD	LDA A	NUMFLG
08D6	27	2E			BEQ	OUTB75
08D8	8D	F3			BSR	OUTSPC
08DA	C6	02			LDA B	#2
08DC	0C				CLC	
08DD	A6	00		OUTBC2	LDA A	0,X
08DF	85	F0			BIT A	##F0
08E1	25	02			BCS	OUTBC3
08E3	27	06			BEQ	OUTB35
08E5	BD	09	13	OUTBC3	JSR	OUTHL
08E8	0D				SEC	
08E9	20	02			BRA	OUTBC4
08EB	8D	E0		OUTB35	BSR	OUTSPC
08ED	A6	00		OUTBC4	LDA A	0,X
08EF	C5	FE			BIT B	##FE
08F1	27	06			BEQ	OUTBC6
08F3	85	0F			BIT A	##0F
08F5	25	02			BCS	OUTBC6
08F7	27	05			BEQ	OUTB65
08F9	8D	1C		OUTBC6	BSR	OUTHR
08FB	0D				SEC	
08FC	20	02			BRA	OUTBC7
08FE	8D	CD		OUTB65	BSR	OUTSPC
0900	08			OUTBC7	INX	
0901	5A				DEC B	
0902	27	07			BEQ	OUTBC8
0904	2A	D7			BPL	OUTBC2
0906	86	3D		OUTB75	LDA A	#'=
0908	7E	02	09	OUTB78	JMP	OUTCH
090B	86	2E		OUTBC8	LDA A	#',
090D	BD	02	09		JSR	OUTCH
0910	0D				SEC	
0911	20	CA			BRA	OUTBC2
						GO FINISH

* OUTPUT DIGITS ROUTINE

0913	44		OUTHL	LSR A		SHIFT LEFT FOUR TIMES
0914	44			LSR A		
0915	44			LSR A		
0916	44			LSR A		
0917	84	0F	OUTHR	AND A	##0F	MASK
0919	8B	30		ADD A	##30	MAKE ASCII
091B	20	EB		BRA	OUTB78	

* SET NUMBERS ON OR OFF

091D	8D	18	NUMSET	BSR	ONOFF	GET ON OFF
091F	27	07		BEQ	NUMSE2	
0921	2B	0A		BMI	NUMSE4	
0923	7F	00	6A	CLR	NUMFLG	CLEAR FLAG
0926	20	08		BRA	NUMSE6	
0928	43		NUMSE2	COM A		COM. FLAG
0929	97	6A		STA A	NUMFLG	SAVE IN FLAG

LOCN	B1	B2	B3			
092B	20	03		BRA	NUMSE6	
092D	73	00	6A	NUMSE4	COM	NUMFLG
0930	DE	4A		NUMSE6	LDX	NEWPOS
0932	DF	48		STX	CURPOS	SET POINTER
0934	7E	08	A2	JMP	PRINT6	

* CHECK FOR ON OR OFF

0937	DE	44	ONOFF	LDX	BUFPT	SET POINTER
0939	BD	04	92	JSR	SKIPSP	SKIP SPACES
093C	DF	44		STX	BUFPT	SAVE POINTER
093E	DF	40		STX	TEMP	
0940	CE	09	46	LDX	#ONOFFB	POINT TO TABLE
0943	7E	04	00	JMP	EDIT6	

* TABLE FOR ON OFF

0946	4F		ONOFFB	FCC	'ON'
0947	4E				
0948	00			FCB	0
0949	09	56		FDB	ON
094B	4F			FCC	'OFF'
094C	46				
094D	46				
094E	00			FCB	0
094F	09	58		FDB	OFF
0951	0D			FCB	CRGRET
0952	00			FCB	0
0953	09	5B		FDB	TOGGLE
0955	00			FCB	0

* ON OFF ROUTINES

0956	4F		ON	CLR	A	
0957	39			RTS		RETURN
0958	86	01	OFF	LDA	A #1	SET FLAG
095A	39			RTS		RETURN
095B	DE	44	TOGGLE	LDX	BUFPT	
095D	09			DEX		
095E	DF	44		STX	BUFPT	FIX
0960	86	FF		LDA	A #FF	SET FLAG
0962	39			RTS		RETURN

* SET VERIFY FLAG

0963	8D	D2	VERSET	BSR	ONOFF	CHECK ON OFF
0965	27	07		BEQ	VERSE2	
0967	2B	0A		BMI	VERSE4	
0969	7F	00	6B	CLR	VERFLG	CLEAR FLAG
096C	20	08		BRA	VERSE6	
096E	43		VERSE2	COM	A	


```

LOCN B1 B2 B3
096F 97 6B          STA A  VERFLG
0971 20 03          BRA    VERSE6
0973 73 00 6B  VERSE4 COM    VERFLG    COM. FLAG
0976 20 B8          VERSE6 BRA    NUMSE6

```

* CURSOR CONTROL COMMAND 'X'

```

0978 8D 2A          XCNTL  BSR    TFORCR
097A CE 09 82          LDX    #CNRSTR  POINT TO STRING
097D BD 04 85          JSR    PDATA1  OUTPUT IT
0980 20 AE          BRA    NUMSE6

```

```

0982 00          CNRSTR  FCB    0,0,0,0,0,0

```

```

0983 00

```

```

0984 00

```

```

0985 00

```

```

0986 00

```

```

0987 00

```

```

0988 04

```

```

FCB    4

```

```

THIS 4 MUST REMAIN !!

```

* EXIT ROUTINE

```

0989 8D 19          EXIT    BSR    TFORCR
098B 7E E0 D0          JMP    MIKBUG  EXIT

```

* SET POINTER TO BOTTOM

```

098E 8D 14          BOTTOM  BSR    TFORCR
0990 BD 08 AB  BOTTO1  JSR    TSTEMP
0993 DE 99          LDX    FILEND
0995 BD 07 F0          JSR    BAKONE  MOVE BACK ONE
0998 DF 48          BOTTO2  STX    CURPOS  SAVE-POINTER
099A 7E 08 A2          JMP    PRINT6

```

* SET POINTER TO TOP

```

099D 8D 05          TOP    BSR    TFORCR
099F BD 08 AB          JSR    TSTEMP
09A2 20 F4          BRA    BOTTO2

```

* TEST OR C.R.

```

09A4 DE 44          TFORCR  LDX    BUFPNT  SET POINTER
09A6 BD 04 92          JSR    SKIPSP
09A9 81 0D          CMP  A  #CRGRET  IS IT C.R.?
09AB 27 04          BEQ    TFORC2
09AD 91 B5          CMP  A  EOL
09AF 26 01          BNE    TFORC3
09B1 39          TFORC2  RTS    RETURN
09B2 7E 04 71  TFORC3  JMP    SYNERR

```


LOCN B1 B2 B3

* TEST FOR MULTIPLE STATEMENTS PER LINE

09B5 DE 44	TSTMSL	LDX	BUFPNT	GET POINTER
09B7 86 0D		LDA A	#CRGRET	GET C.R.
09B9 D6 B5		LDA B	EOL	GET EOL CHAR.
09BB A1 00	TSTMS2	CMP A	0,X	CHECK CHARACTER
09BD 27 0C		BEQ	TSTMS5	
09BF E1 00		CMP B	0,X	
09C1 27 03		BEQ	TSTMS4	
09C3 08		INX		BUMP POINTER ONE
09C4 20 F5		BRA	TSTMS2	REPEAT
09C6 08	TSTMS4	INX		
09C7 DF 44		STX	BUFPNT	SAVE BUFFER POINT
09C9 97 6C		STA A	MSLFLG	SET FLAG
09CB 39	TSTMS5	RTS		RETURN

* PROCESS THE NEXT COMMAND

09CC 7C 00 76	NEXT	INC	NXTFLG
---------------	------	-----	--------

* FIND COMMAND

09CF BD 08 A8	CFIND	JSR	TSTEMP	
09D2 7C 00 75		INC	LINFLG	SET FLAG
09D5 8D 71		BSR	OCCURR	CHECK FOR OCCURRENCE
09D7 DE 93		LDX	TRGLIN	SET POINTER
09D9 BD 08 21		JSR	TSTOVR	CHECK LIMITS
09DC 27 2A		BEQ	CFIND2	
09DE D6 76		LDA B	NXTFLG	CHECK FLAG
09E0 26 43		BNE	CFIND5	
09E2 20 04		BRA	CFIN12	
09E4 96 77	CFIND1	LDA A	ALLFLG	CHECK IF ALL
09E6 26 40		BNE	CFIND6	
09E8 CE 0A 31	CFIN12	LDX	#CFNTST	POINT TO STRING
09EB BD 04 83		JSR	PSTRNG	OUTPUT IT
09EE DE 5E		LDX	ZONE1	CHECK ZONES
09F0 8C 00 01		CPX	##0001	
09F3 26 07		BNE	CFIN13	
09F5 DE 60		LDX	ZONE2	CHECK ZONE 2
09F7 8C 01 36		CPX	##0136	
09FA 27 06		BEQ	CFIN14	
09FC CE 0A 3B	CFIN13	LDX	#ZOKSTR	POINT TO STRING
09FF BD 04 85		JSR	PDATA1	OUTPUT IT
0A02 7F 00 6C	CFIN14	CLR	MSLFLG	
0A05 7E 03 8A	CFIN15	JMP	EDIT	RETURN
0A08 DE 93	CFIND2	LDX	TRGLIN	POINT TO TARGET
0A0A 9C 4A		CPX	NEWPOS	SAME ONE?
0A0C 27 1A		BEQ	CFIND6	
0A0E DF 4A		STX	NEWPOS	SAVE IT
0A10 D6 78	CFIND3	LDA B	OCRFLG	CHECK FLAG
0A12 27 11		BEQ	CFIND5	

LOCN B1 B2 B3			
0A14 D6 76	LDA B	NXTFLG	CHECK FLAG
0A16 26 03	BNE	CFIND4	
0A18 BD 08 3F	JSR	VERLIN	VERIFY LINE
0A1B BD 0A B3	CFIND4 JSR	NXTOCR	CHECK NEXT OCCUR.
0A1E BD 08 21	JSR	TSTOVR	CHECK LIMITS
0A21 27 E5	BEQ	CFIND2	
0A23 20 06	BRA	CFIND9	
0A25 BD 08 3F	CFIND5 JSR	VERLIN	VERIFY LINE
0A28 7E 08 A2	CFIND6 JMP	PRINT6	
0A2B D6 76	CFIND9 LDA B	NXTFLG	CHECK FLAG
0A2D 26 F6	BNE	CFIND5	
0A2F 20 B3	BRA	CFIND1	

0A31 4E	CFNTST FCC	'NOT FOUND'
---------	------------	-------------

0A32 4F
0A33 54
0A34 20
0A35 46
0A36 4F
0A37 55
0A38 4E
0A39 44
0A3A 04

FCB

4

0A3B 2E	ZOKSTR FCC	'...ZONES OK?'
---------	------------	----------------

0A3C 2E
0A3D 2E
0A3E 5A
0A3F 4F
0A40 4E
0A41 45
0A42 53
0A43 20
0A44 4F
0A45 4B
0A46 3F
0A47 04

FCB

4

* CHECK FOR OCCURRENCE

0A48 DE 44	OCCURR LDX	BUFPNT	SET POINTER
0A4A DF 46	STX	BUFSAV	SAVE IT
0A4C 7F 00 77	CLR	ALLFLG	
0A4F 7F 00 78	CLR	OCRFLG	
0A52 BD 04 E9	JSR	FINDT	FIND TARGET
0A55 DE 44	LDX	BUFPNT	RESTORE POINTER
0A57 BD 07 38	JSR	SKPCLS	
0A5A C1 01	CMP B	#1	IS IT NUMBER?
0A5C 27 09	BEQ	OCCUR3	
0A5E 81 2A	CMP A	#*	IS IT A '*'?
0A60 26 17	BNE	OCCUR5	
0A62 7C 00 77	INC	ALLFLG	SET FOR ALL OCCUR.
0A65 20 0F	BRA	OCCUR4	


```

LOCN B1 B2 B3
0A67 BD 07 55 OCCUR3 JSR BCDCON GET NUMBER
0A6A BD 08 38 JSR TSTNUM ZERO?
0A6D 27 0A BEQ OCCURS
0A6F BD 08 2A JSR DECNUM DEC NUMBER
0A72 27 05 BEQ OCCURS
0A74 BD 04 BSR SAVOCR SAVE OCCURRENCE
0A76 7C 00 78 OCCUR4 INC OCRFLG SET FLAG
0A79 39 OCCUR5 RTS RETURN

```

* SAVE PRESENT OCCURRENCE COUNT

```

0A7A 96 90 SAVOCR LDA A NUMBER GET NUMBER
0A7C 97 6E STA A OCRCNT SAVE IT
0A7E 96 91 LDA A NUMBER+1
0A80 97 6F STA A OCRCNT+1
0A82 39 RTS RETURN

```

* PROCCES NEXT OCCURRENCE

```

0A83 96 77 NXTOCR LDA A ALLFLG CHECK FOR ALL
0A85 26 0F BNE NXTOC1
0A87 96 6E NXTOCO LDA A OCRCNT GET COUNT
0A89 97 90 STA A NUMBER PUT IN NUMBER
0A8B 96 6F LDA A OCRCNT+1
0A8D 97 91 STA A NUMBER+1
0A8F BD 08 2A JSR DECNUM DEC THE COUNT
0A92 27 0B BEQ NXTOC2
0A94 BD E4 BSR SAVOCR SAVE COUNT
0A96 96 85 NXTOC1 LDA A CHGFLG
0A98 26 0A BNE NXTOC3
0A9A DE 46 LDX BUFSAV RESTORE POINTER
0A9C 7E 04 E9 JMP FINDT FIND TARGET AND RET
0A9F 7F 00 78 NXTOC2 CLR OCRFLG CLEAR FLAG
0AA2 20 F2 BRA NXTOC1
0AA4 39 NXTOC3 RTS RETURN

```

* EQUALS COMMAND

```

0AA5 BD 08 A8 EQUALS JSR TSTEMP
0AA8 DE 44 LDX BUFPNT SET POINTER
0AAA 7F 00 7D CLR BMPFLG
0AAD 7C 00 84 INC SNGLIN
0AB0 7C 00 7E INC EQUFLG
0AB3 96 74 LDA A NOCURL CURRENT LINE?
0AB5 26 20 BNE INSERT1
0AB7 DE 4A LDX NEWPOS
0AB9 DF 93 STX TRGLIN FIX TARGET
0ABB BD 06 98 JSR GETNUM GET NUMBER
0ABE 7C 00 81 INC REPFLG SET FLAG
0AC1 96 8E LDA A CHRCNT+1
0AC3 97 82 STA A TMPCHR
0AC5 7E 0C BB JMP DELETO

```


LOCN B1 B2 B3

* INSERT ROUTINE

0AC8 DE 44	INSERT	LDX	BUFPNT	SET POINTER
0ACA 7F 00 7D		CLR	BMPFLG	CLEAR FLAG
0ACD A6 00		LDA A	0,X	GET CHAR.
0ACF 81 0D		CMP A	#CRGRET	
0AD1 27 17		BEQ	INSER4	
0AD3 7C 00 84		INC	SNGLIN	SET FLAG
0AD6 08		INX		BUMP THE POINTER
0AD7 DF 44	INSER1	STX	BUFPNT	SAVE IT
0AD9 CE 00 BB		LDX	#BUFFER	
0ADC 96 8E		LDA A	CHRCNT+1	GET COUNT
0ADE 9C 44	INSER2	CPX	BUFPNT	CHECK POINT
0AE0 27 04		BEQ	INSER3	
0AE2 4A		DEC A		DEC THE COUNTER
0AE3 08		INX		BUMP THE POINTER
0AE4 20 F8		BRA	INSER2	
0AE6 8B 03	INSER3	ADD A	#3	FIX COUNT
0AE8 97 8E		STA A	CHRCNT+1	
0AEA DE 4A	INSER4	LDX	NEWPOS	SET POINTER
0AEC DF 48		STX	CURPOS	SAVE POINTER
0AEE 96 7E		LDA A	EQUFLG	
0AF0 27 06		BEQ	INSE42	
0AF2 96 72		LDA A	OVRBEG	CHECK LIMIT
0AF4 27 14		BEQ	INSE43	
0AF6 20 25		BRA	INSER5	
0AF8 BD 06 98	INSE42	JSR	GETNUM	
0AFB 96 7F		LDA A	INLMFL	CHECK FLAG
0AFD 27 0B		BEQ	INSE43	
0AFF 9C 99		CPX	FILEND	EMPTY?
0B01 27 07		BEQ	INSE43	
0B03 5F		CLR B		CLEAR ACC.
0B04 D7 90		STA B	NUMBER	SAVE IN NUMBER
0B06 D7 91		STA B	NUMBER+1	
0B08 20 13		BRA	INSER5	
0B0A BD 08 OF	INSE43	JSR	UPONE	UP ONE LINE
0B0D E6 02		LDA B	2,X	GET DIGIT
0B0F 96 73		LDA A	OVREND	LIMIT?
0B11 27 0A		BEQ	INSER5	
0B13 5F	INSE45	CLR B		
0B14 DE 99		LDX	FILEND	
0B16 9C 97		CPX	FILBEG	
0B18 26 03		BNE	INSER5	
0B1A BD 07 A3		JSR	CLRNUM	CLEAR OUT NUMBER

* CALCULATE LINE NUMBER INCREMENT

0B1D DF 58	INSER5	STX	SPCPT1	SAVE POINTER
0B1F 96 7E		LDA A	EQUFLG	
0B21 26 2C		BNE	INSE60	
0B23 96 73		LDA A	OVREND	LIMIT?
0B25 27 05		BEQ	INSE51	
0B27 7F 00 92		CLR	NUMBER+2	

LOCN	B1	B2	B3			
0B2A	20	1C		BRA	INSERT6	
0B2C	96	7D		INSE51 LDA A	BMPFLG	
0B2E	26	18		BNE	INSERT6	
0B30	96	92		LDA A	NUMBER+2	GET NUMBER
0B32	D7	82		STA B	TMPCHR	
0B34	9A	82		ORA A	TMPCHR	
0B36	27	0D		BEQ	INSE55	
0B38	96	7F		LDA A	INLMFL	CHECK FLAG
0B3A	27	03		BEQ	INSE52	
0B3C	7F	00	92	CLR	NUMBER+2	
0B3F	86	01		INSE52 LDA A	#1	
0B41	97	7C		STA A	INCMNT	SET AMOUNT
0B43	20	03		BRA	INSERT6	
0B45	7A	00	7C	INSE55 DEC	INCMNT	
0B48	BD	06	6A	INSERT6 JSR	BMPNUM	BUMP NUMBER
0B4B	96	84		LDA A	SNGLIN	CHECK IF SINGLE IN
0B4D	27	04		BEQ	INSE61	

* ENTER BUFFERED INPUT MODE

0B4F	DE	44		INSE60 LDX	BUFPNT	
0B51	20	2D		BRA	INSE71	
0B53	7F	00	7F	INSE61 CLR	INLMFL	
0B56	BD	04	4E	JSR	PCRLF	
0B59	CE	00	90	LDX	#NUMBER	POINT TO NUMBER
0B5C	BD	08	D4	JSR	OUTBCD	OUTPUT IT
0B5F	7F	00	BD	CLR	CHRCNT	
0B62	86	03		LDA A	#3	SET COUNTER
0B64	97	8E		STA A	CHRCNT+1	
0B66	97	7D		STA A	BMPFLG	SET FLAG
0B68	CE	00	BB	LDX	#BUFFER	SET POINTER
0B6B	BD	04	99	INSE62 JSR	INCHAR	GET A CHARACTER
0B6E	27	E3		BEQ	INSE61	
0B70	81	0D		CMP A	#CRGRET	IS IT C.R.?
0B72	27	07		BEQ	INSE7	
0B74	A7	00		STA A	0,X	
0B76	BD	04	BB	JSR	BUFLIM	CHECK LIMIT
0B79	20	F0		BRA	INSE62	REPEAT
0B7B	A7	00		INSE7 STA A	0,X	
0B7D	CE	00	BB	LDX	#BUFFER	SET POINTER
0B80	DF	44		INSE71 STX	BUFPNT	SAVE IT
0B82	A6	00		LDA A	0,X	GET CHAR.
0B84	91	B4		CMP A	LINO	ESCAPE?
0B86	26	40		BNE	INSE72	
0B88	96	8E		LDA A	CHRCNT+1	
0B8A	80	03		SUB A	#3	FIX COUNT
0B8C	97	8E		STA A	CHRCNT+1	
0B8E	08			INX		BUMP THE POINTER

* CHECK IF RENUMBERING NECESSARY

0B8F	DF	40		INS710 STX	TEMP	SAVE POINTER
0B91	DE	4A		LDX	NEWPOS	
0B93	BD	08	0F	JSR	UPONE	UP ONE LINE
0B96	7D	00	73	TST	OVREND	LIMIT?

LOCN B1 B2 B3			
OB99 26 1A	BNE	INS711	
OB9B 7C 00 83	INC	CHKFLG	SET FLAG
OB9E D6 90	LDA B	NUMBER	GET NUMBER
OBA0 96 91	LDA A	NUMBER+1	
OBA2 BD 07 BA	JSR	FNDNU4	CHECK NUMBER
OBA5 26 0E	BNE	INS711	
OBA7 4F	CLR A		
OBA8 97 7C	STA A	INCAMT	SET INC AMOUNT
OBA9 97 92	STA A	NUMBER+2	
OBAC BD 06 B0	JSR	RENUM2	RENUMBER FILE
OBAF CE 0B F2	LDX	#RENSTR	POINT TO STRING
OBBD BD 04 83	JSR	PSTRNG	OUTPUT IT
OBBD DE 40	LDX	TEMP	RESTORE POINTER
OBBD 7D 00 84	TST	SNGLIN	
OBBA 27 06	BEQ	INS712	
OBBC DE 4A	LDX	NEWPOS	FIX POINTER
OBBD DF 48	STX	CURPOS	
OBC0 20 03	BRA	INS713	
OBC2 7C 00 6C	INS712 INC	MSLFLG	SET FLAG
OBC5 7E 03 8A	INS713 JMP	EDIT	

* ACTUAL LINE INSERT

OBC8 BD 3E	INSE72 BSR	MAKSPC	MAKE SOME SPACE
OBCA DE 40	LDX	TEMP	RESTORE POINTER
OBCD DF 4A	STX	NEWPOS	
OBCD BD 06 8B	JSR	PUTNUM	PUT NUMBER
OBD1 08	INX		BUMP 3 TIMES
OBD2 08	INX		
OBD3 08	INX		
OBD4 DF 40	STX	TEMP	SAVE POINTER
OBD6 DE 44	INSE75 LDX	BUFPNT	
OBD8 A6 00	LDA A	O,X	GET CHAR.
OBD8 08	INX		BUMP THE POINTER
OBD8 DF 44	STX	BUFPNT	SAVE IT
OBD8 DE 40	LDX	TEMP	
OBD8 A7 00	STA A	O,X	PUT CHAR.
OBE1 08	INX		BUMP
OBE2 DF 40	STX	TEMP	SAVE
OBE4 81 0D	CMP A	#CRGRET	
OBE6 26 EE	BNE	INSE75	REPEAT
OBE8 BD 12 85	JSR	EXPLIN	EXPAND TABS
OBE8 96 84	LDA A	SNGLIN	
OBE8 26 A0	BNE	INS710	
OBEF 7E 0A EA	JMP	INSER4	

OBF2 53	RENSTR FCC	'SOME LINES RENUMBERED'
OBF3 4F		
OBF4 4D		
OBF5 45		
OBF6 20		
OBF7 4C		
OBF8 49		
OBF9 4E		

LOCN B1 B2 B3

OBFA 45
 OBFB 53
 OBFC 20
 OBFD 52
 OBFE 45
 OBFF 4E
 OC00 55
 OC01 4D
 OC02 42
 OC03 45
 OC04 52
 OC05 45
 OC06 44
 OC07 04

FCB 4

* MAKE ROOM FOR INSERT

OC08 7F 00 89	MAKSPC	CLR	DECCNT	CLEAR COUNT
OC0B DE 58		LDX	SPCPT1	SET POINTER
OC0D DF 40		STX	TEMP	SAVE
OC0F 9C 99		CPX	FILEND	END OF FILE?
OC11 26 03		BNE	MAKSP1	
OC13 7C 00 89		INC	DECCNT	
OC16 DE 99	MAKSP1	LDX	FILEND	SET POINTER
OC18 DF 58		STX	SPCPT1	SAVE
OC1A D6 8D		LDA B	CHRCNT	
OC1C 96 8E		LDA A	CHRCNT+1	
OC1E 26 03		BNE	MAKS21	
OC20 5D	MAKS18	TST B		
OC21 27 37	MAKSP2	BEQ	MAKSP4	
OC23 BC 02 12	MAKS21	CPX	MEMEND	END OF MEMORY?
OC26 27 26		BEQ	MAKSP3	
OC28 08		INX		BUMP THE POINTER
OC29 7D 00 8C		TST	DRCTN	WHICH DIRECTION?
OC2C 26 04		BNE	MAKS22	
OC2E DF 42		STX	XSAVE	SAVE POINTER
OC30 20 0C		BRA	MAK222	
OC32 7D 00 8B	MAKS22	TST	CPYDRC	
OC35 27 0E		BEQ	MAKS23	
OC37 DF 42		STX	XSAVE	SAVE THE POINTER
OC39 DE 4A		LDX	NEWPOS	GET POSITION
OC3B 08		INX		BUMP IT
OC3C DF 4A		STX	NEWPOS	SAVE IT
OC3E DE 93	MAK222	LDX	TRGLIN	GET TARGET
OC40 08		INX		BUMP IT
OC41 DF 93		STX	TRGLIN	
OC43 DE 42		LDX	XSAVE	RESTORE POINTER
OC45 4D	MAKS23	TST A		TEST THE ACC.
OC46 26 01		BNE	MAKS24	
OC48 5A		DEC B		DEC THE COUNTER
OC49 4A	MAKS24	DEC A		
OC4A 26 D7		BNE	MAKS21	
OC4C 20 D2		BRA	MAKS18	REPEAT
OC4E CE 0C 77	MAKSP3	LDX	#NORMST	POINT TO STRING

LOCN	B1	B2	B3			
0C51	BD	04	83	JSR	PSTRNG	OUTPUT IT
0C54	7F	00	6C	CLR	MSLFLG	
0C57	7E	03	8A	JMP	EDIT	RETURN
0C5A	DF	99		MAKSP4	STX	FILEND
0C5C	DF	5A			STX	SPCPT2
0C5E	96	89			LDA A	DECCNT
0C60	26	14			BNE	MAKSP6
0C62	DF	5A		MAKSP5	STX	SPCPT2
0C64	DE	58		MAKSP5	LDX	SPCPT1
0C66	9C	40			CPX	TEMP
0C68	27	0C			BEQ	MAKSP6
0C6A	09				DEX	
0C6B	A6	00			LDA A	0,X
0C6D	DF	58			STX	SPCPT1
0C6F	DE	5A			LDX	SPCPT2
0C71	09				DEX	
0C72	A7	00			STA A	0,X
0C74	20	EC			BRA	MAKSP5
0C76	39			MAKSP6	RTS	

OUTPUT IT

RETURN

SAVE POINTER

SAVE POINTER

CHECK

SAVE POINTER

DONE?

DEC THE POINTER

GET CHAR.

SAVE POINTER

DEC THE POINTER

PUT THE CHAR.

REPEAT

RETURN

0C77	4E			NORMST	FCC	'NOT ENOUGH ROOM'
0C78	4F					
0C79	54					
0C7A	20					
0C7B	45					
0C7C	4E					
0C7D	4F					
0C7E	55					
0C7F	47					
0C80	48					
0C81	20					
0C82	52					
0C83	4F					
0C84	4F					
0C85	4D					
0C86	04				FCB	4

* REPLACE LINES ROUTINE

0C87	7C	00	81	REPLAC	INC	REPFLG	SET FLAG
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* DELETE LINES ROUTINE

0C8A	DE	44		DELETE	LDX	BUFPNT	SET POINTER
0C8C	BD	04	E9		JSR	FINDT	FIND TARGET
0C8F	BD	08	21		JSR	TSTOVR	LIMITS?
0C92	27	27			BEQ	DELETO	
0C94	CE	0D	7F	DELE02	LDX	#NTRCHS	POINT TO STRING
0C97	BD	04	83		JSR	PSTRNG	OUTPUT IT
0C9A	CE	00	BB		LDX	#BUFFER	POINT TO BUFFER
0C9D	BD	04	99	DELE04	JSR	INCHAR	GET A CHARACTER
0CA0	27	F2			BEQ	DELE02	

LOCN B1 B2 B3			
OCA2 A7 00		STA A 0,X	SAVE IT
OCA4 08		INX	
OCA5 81 0D		CMP A #CRGRET	C.R.?
OCA7 26 F4		BNE DELE04	REPEAT
OCA9 CE 00 BB		LDX #BUFFER	
OCAC BD 04 92		JSR SKIPSP	SKIP SPACES
OCAF 81 59		CMP A #'Y	WAS IT 'Y'ES?
OCB1 27 08		BEQ DELETO	
OCB3 CE 0D A3		LDX #NLDSTR	POINT TO STRING
OCB6 BD 04 83		JSR PSTRNG	
OCB9 20 60		BRA DELET5	RETURN
OCBB DE 4A	DELETO	LDX NEWPOS	SET POINTER
OCBD 96 8C		LDA A DRCTN	CHECK DIRECTION
OCBF 27 15		BEQ DELET1	
OCC1 BD 08 0F		JSR UPONE	MOVE UP ONE
OCC4 96 73		LDA A OVREND	LIMIT?
OCC6 27 02		BEQ DELE15	
OCC8 DE 99		LDX FILEND	
OCCA DF 5A	DELE15	STX SPCPT2	
OCCC DE 93		LDX TRGLIN	GET TARGET
OCCE DF 48		STX CURPOS	MAKE CURRENT
OCDO DF 58		STX SPCPT1	
OCD2 DE 5A		LDX SPCPT2	GET POINTER
OCD4 20 11		BRA DELE25	
OCD6 DF 58	DELET1	STX SPCPT1	SAVE
OCD8 DF 48		STX CURPOS	
OCDA DE 93		LDX TRGLIN	POINT TO TARGET
OCDC BD 08 0F		JSR UPONE	MOVE UP ONE
OCDF 96 73		LDA A OVREND	LIMIT?
OCE1 27 02		BEQ DELET2	
OCE3 DE 99		LDX FILEND	POINT TO END
OCE5 DF 5A	DELET2	STX SPCPT2	SAVE POINTER
OCE7 4F	DELE25	CLR A	
OCE8 5F		CLR B	
OCE9 9C 58	DELET3	CPX SPCPT1	
OCEB 27 07		BEQ DELET4	
OCED 4C		INC A	
OCEE 26 01		BNE DELE35	
OCF0 5C		INC B	BUMP THE COUNTER
OCF1 09	DELE35	DEX	
OCF2 20 F5		BRA DELET3	
OCF4 97 8E	DELET4	STA A CHRCNT+1	SAVE COUNT
OCF6 D7 8D		STA B CHRCNT	
OCF8 8D 49		RSR DELCHR	DELETE CHARACTERS
OCFA 96 81		LDA A REPFLG	REPLACE?
OCFC 27 1D		BEQ DELET5	
OCFE DE 48		LDX CURPOS	SET POINTER
OD00 BD 07 F0		JSR BAKONE	BACKUP ONE LINE
OD03 96 7E		LDA A EQUFLG	
OD05 26 2C		BNE DELET7	
OD07 96 72		LDA A OVRBEG	CHECK LIMIT
OD09 27 08		BEQ DELE45	
OD0B BD 07 A3		JSR CLRNUM	CLEAR NUMBER
OD0E DF 4A		STX NEWPOS	SAVE NEW POSITION
OD10 7E 0B 1D		JMP INSER5	

LOCN	B1	B2	B3				
0D13	DF	4A		DELE45	STX	NEWPOS	SAVE
0D15	7F	00	7D		CLR	BMPFLG	
0D18	7E	0A	EA		JMP	INSER4	GO TO INSERT
0D1B	DE	48		DELET5	LDX	CURPOS	CHECK POSITION
0D1D	9C	99			CPX	FILEND	END?
0D1F	26	0D			BNE	DELET6	
0D21	BD	07	F0		JSR	BAKONE	MOVE IT BACK
0D24	DF	40			STX	TEMP	SAVE POINTER
0D26	CE	0D	B4		LDX	#BFRSTR	POINT TO STRING
0D29	BD	04	83		JSR	PSTRNG	OUTPUT IT
0D2C	DE	40			LDX	TEMP	RESTORE
0D2E	DF	48		DELET6	STX	CURPOS	
0D30	7E	08	A2		JMP	PRINT6	
0D33	DF	4A		DELET7	STX	NEWPOS	SAVE POINTER
0D35	96	82			LDA A	TMPCHR	GET CHAR COUNT
0D37	97	8E			STA A	CHRCNT+1	
0D39	4F				CLR A		
0D3A	97	7D			STA A	BMPFLG	CLEAR FLAG
0D3C	97	8D			STA A	CHRCNT	
0D3E	DE	44			LDX	BUFPT	SET POINTER
0D40	7E	0A	D7		JMP	INSER1	GO INSERT IT

* DELETE CHARACTER BLOCK

0D43	DE	5A		DELCHR	LDX	SPCPT2	SET POINTER
0D45	9C	58			CPX	SPCPT1	EQUAL?
0D47	27	35			BEQ	DELCH5	
0D49	9C	99			CPX	FILEND	END OF FILE?
0D4B	27	0E			BEQ	DELCH2	
0D4D	A6	00			LDA A	0,X	GET A CHAR.
0D4F	08				INX		BUMP THE POINTER
0D50	DF	5A			STX	SPCPT2	SAVE
0D52	DE	58			LDX	SPCPT1	
0D54	A7	00			STA A	0,X	PUT CHAR.
0D56	08				INX		
0D57	DF	58			STX	SPCPT1	SAVE POINTER
0D59	20	E8			BRA	DELCHR	REPEAT
0D5B	D6	8D		DELCH2	LDA B	CHRCNT	GET COUNT
0D5D	96	8E			LDA A	CHRCNT+1	
0D5F	26	03			BNE	DELCH31	
0D61	5D			DELC21	TST B		CHECK COUNT
0D62	27	18		DELCH3	BEQ	DELCH4	
0D64	09			DELCH31	DEX		DEC THE POINTER
0D65	7D	00	8C		TST	DRCTN	WHICH DIRECTION?
0D68	26	09			BNE	DELC32	
0D6A	DF	42			STX	XSAVE	
0D6C	DE	93			LDX	TRGLIN	GET TARGET
0D6E	09				DEX		DEC IT
0D6F	DF	93			STX	TRGLIN	PUT IT BACK
0D71	DE	42			LDX	XSAVE	RESTORE POINTER
0D73	4D			DELC32	TST A		TEST COUNT
0D74	26	01			BNE	DELC34	
0D76	5A				DEC B		DEC THE COUNTER
0D77	4A			DELC34	DEC A		

LOCN B1 B2 B3

0D78 26 EA BNE
0D7A 20 E5 BRA
0D7C DF 99 DELCH4 STX
0D7E 39 DELCH5 RTS

DELCH31

DELCH21

FILEND

SET NEW END

RETURN

0D7F 54 NTRCHS FCC

'TARGET NOT REACHED!'

0D80 41

0D81 52

0D82 47

0D83 45

0D84 54

0D85 20

0D86 4E

0D87 4F

0D88 54

0D89 20

0D8A 52

0D8B 45

0D8C 41

0D8D 43

0D8E 48

0D8F 45

0D90 44

0D91 21

0D92 0D

0D93 0A

0D94 00

0D95 00

0D96 00

0D97 00

0D98 59

0D99 4F

0D9A 55

0D9B 20

0D9C 53

0D9D 55

0D9E 52

0D9F 45

0DA0 3F

0DA1 20

0DA2 04

FCB

10D,\$A,0,0,0,0

FCC

'YOU SURE?'

FCB

4

0DA3 4E NLDSTR FCC

'NO LINES DELETED'

0DA4 4F

0DA5 20

0DA6 4C

0DA7 49

0DA8 4E

0DA9 45

0DAA 53

0DAB 20

0DAC 44

0DAD 45

0DAE 4C

LOCN B1 B2 B3

ODAF 45

ODBO 54

ODB1 45

ODB2 44

ODB3 04

FCB

4

ODB4 42

BFRSTR

FCC

'BOTTOM OF FILE REACHED'

ODB5 4F

ODB6 54

ODB7 54

ODB8 4F

ODB9 4D

ODBA 20

ODBB 4F

ODBC 46

ODBD 20

ODBE 46

ODBF 49

ODCO 4C

ODC1 45

ODC2 20

ODC3 52

ODC4 45

ODC5 41

ODC6 43

ODC7 48

ODC8 45

ODC9 44

ODCA 04

FCB

4

* CHANGE COMMAND ROUTINE

ODCB BD 08 AB	CHANGE	JSR	TSTEMP	
ODCE DE 44		LDX	BUFPNT	POINT TO BUFFER
ODDO BD 07 38		JSR	SKPCLS	
ODD3 BD 06 63		JSR	TSTEND	
ODD6 27 03		BEQ	CHAN12	ERROR
ODD8 5D	CHANG1	TST B		
ODD9 27 03		BEQ	CHAN15	ERROR
ODDB 7E 0F 04	CHAN12	JMP	CHANG9	
ODDE 7C 00 85	CHAN15	INC	CHGFLG	SET FLAG
ODE1 BD 05 FA		JSR	SETDEL	SET DELIMITERS
ODE4 5F		CLR B		CLEAR COUNT
ODE5 A6 00	CHANG2	LDA A	O,X	GET CHAR.
ODE7 BD 06 63		JSR	TSTEND	
ODEA 27 08		BEQ	CHANG3	
ODEC 91 95		CMP A	DELIM	IS IT DELIMITER?
ODEE 27 04		BEQ	CHANG3	
ODF0 08		INX		BUMP THE POINTER
ODF1 5C		INC B		BUMP THE COUNT
ODF2 20 F1		BRA	CHANG2	
ODF4 DF 66	CHANG3	STX	CHGEND	SAVE POINTER
ODF6 D7 86		STA B	STRCN2	SAVE COUNT
ODF8 BD 06 63		JSR	TSTEND	

LOCN	B1	B2	B3			
0DFB	27	01		BEQ	CHAN35	
0DFD	08			INX		BUMP POINTER
0DFE	DF	44		CHAN35 STX	BUFPNT	SAVE IT
0E00	DE	4A		LDX	NEWPOS	
0E02	08			CHAN37 INX		BUMP THREE TIMES
0E03	08			INX		
0E04	08			INX		
0E05	DF	64		STX	CHGPNT	SAVE POINTER
0E07	BD	0F	07	JSR	SVSTPT	SAVE STRING POINT
0E0A	7F	00	85	CLR	CHGFLG	
0E0D	BD	0A	48	JSR	OCCURR	GET TARG & OCCUR.
0E10	7C	00	85	INC	CHGFLG	
0E13	BD	0F	14	JSR	RSTSPT	RESTORE STRING
0E16	7F	00	6D	CLR	PSTZFL	
0E19	DE	6E		LDX	OCRCNT	GET COUNT
0E1B	DF	68		STX	OCRTMP	SAVE
0E1D	96	78		LDA A	OCRFLG	
0E1F	27	07		BEQ	CHANG4	
0E21	96	7B		LDA A	STRCNT	CHECK COUNT
0E23	26	03		BNE	CHANG4	
0E25	7E	0F	04	JMP	CHANG9	
0E28	DE	4A		CHAN4 LDX	NEWPOS	
0E2A	9C	93		CPX	TRGLIN	AT TARGET?
0E2C	26	03		BNE	CHANG5	
0E2E	7C	00	88	INC	LSTFLG	SET FLAG IF SO
0E31	BD	06	3B	CHAN5 JSR	ZONE3	SET ZONE
0E34	7F	00	79	CLR	CHGONF	CLEAR FLAG
0E37	DE	64		LDX	CHGPNT	
0E39	BD	06	5A	JSR	FIXZON	SET ZONE
0E3C	BD	05	B8	JSR	FIND72	
0E3F	20	10		BRA	CHA510	

* LOOP THROUGH OCCURRENCES

0E41	7F	00	79	CHAN50	CLR	CHGONF	
0E44	DE	64		CHAN51	LDX	CHGPNT	SET POINTER
0E46	BD	06	5A		JSR	FIXZON	
0E49	BD	06	4F		JSR	CMPZN2	CHECK ZONE
0E4C	22	7A			BHI	CHANG8	
0E4E	BD	05	DF		JSR	FIND75	
0E51	96	90		CHA510	LDA A	NUMBER	GET NUMBER
0E53	97	62			STA A	ZONBUF	PUT IN BUFFER
0E55	96	91			LDA A	NUMBER+1	
0E57	97	63			STA A	ZONBUF+1	
0E59	5D				TST B		
0E5A	26	6C			BNE	CHANG8	
0E5C	5C				INC B		BUMP COUNTER
0E5D	D7	87			STA B	FNONFL	SET FLAG
0E5F	96	78		CHAN52	LDA A	OCRFLG	ANY OCCUR.?
0E61	27	0E			BEQ	CHANG6	
0E63	96	77			LDA A	ALLFLG	CHANGE ALL?
0E65	26	0A			BNE	CHANG6	
0E67	BD	0A	87		JSR	NXTOCO	
0E6A	DE	5C		CHAN55	LDX	LASTNO	SET POINTER
0E6C	08				INX		BUMP IT

LOCN B1 B2 B3
 0E6D DF 64
 0E6F 20 D0

STX
 BRA CHGPNT
 CHAN50

* DELETE STRING ONE

0E71	7C	00	79	CHANG6	INC	CHGONF	SET FLAG
0E74	DE	68			LDX	OCRTMP	CHECK COUNT
0E76	27	04			BEQ	CHAN61	
0E78	86	01			LDA A	#1	
0E7A	97	78			STA A	OCRFLG	
0E7C	DF	6E		CHAN61	STX	OCRCNT	FIX COUNT
0E7E	DE	5C			LDX	LASTNO	GET STR. LOCATION
0E80	DF	58			STX	SPCPT1	
0E82	D6	7B			LDA B	STRCNT	
0E84	27	10			BEQ	CHAN66	
0E86	7F	00	8D		CLR	CHRCNT	CLEAR COUNT
0E89	D7	8E			STA B	CHRCNT+1	
0E8B	27	04		CHAN62	BEQ	CHAN65	
0E8D	08				INX		BUMP POINTER
0E8E	5A				DEC B		DEC THE COUNTER
0E8F	20	FA			BRA	CHAN62	REPEAT
0E91	DF	5A		CHAN65	STX	SPCPT2	SAVE POINTER
0E93	BD	0D	43		JSR	DELCHR	GO DELETE

* INSERT STRING TWO

0E96	D6	86		CHAN66	LDA B	STRCN2	GET COUNT
0E98	27	23			BEQ	CHA675	
0E9A	7F	00	8D		CLR	CHRCNT	CLEAR OUT COUNT
0E9D	D7	8E			STA B	CHRCNT+1	SET COUNTER
0E9F	DE	5C			LDX	LASTNO	SET POINTER
0EA1	DF	58			STX	SPCPT1	
0EA3	BD	0C	08		JSR	MAKSPC	GO MAKE ROOM
0EA6	D6	8E			LDA B	CHRCNT+1	
0EA8	DE	50			LDX	STRNGE	POINT TO STRING END
0EAA	08			CHAN67	INX		BUMP IT
0EAB	A6	00			LDA A	0,X	GET CHAR
0EAD	DF	40			STX	TEMP	
0EAF	DE	5C			LDX	LASTNO	
0EB1	A7	00			STA A	0,X	PUT CHARACTER
0EB3	08				INX		BUMP POINTER
0EB4	DF	5C			STX	LASTNO	SAVE
0EB6	DF	64			STX	CHGPNT	
0EB8	DE	40			LDX	TEMP	RESTORE
0EBA	5A				DEC B		DEC THE COUNTER
0EBB	26	ED			BNE	CHAN67	
0EBD	96	77		CHA675	LDA A	ALLFLG	DO ALL?
0EBF	27	1C			BEQ	CHAN81	
0EC1	DE	5C			LDX	LASTNO	
0EC3	DF	64			STX	CHGPNT	SAVE POINTER
0EC5	7E	0E	44		JMP	CHAN51	REPEAT

* CHANGE CLEANUP AND FINISH

0ECB	7F	00	78	CHANG8	CLR	OCRFLG	CLEAR FLAG
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LOCN B1 B2 B3				
0ECB DE 68		LDX	OCRTMP	GET COUNT
0ECD 27 04		BEQ	CHAN80	
0ECF 86 01		LDA A	#1	SET FLAG
0ED1 97 78		STA A	OCRFLG	
0ED3 DF 6E	CHAN80	STX	OCRCNT	SET OCCUR. COUNT
0ED5 96 87		LDA A	FNONFL	CHECK FLAG
0ED7 26 04		BNE	CHAN81	
0ED9 96 88		LDA A	LSTFLG	
0EDB 26 27		BNE	CHANG9	
0EDD DE 4A	CHAN81	LDX	NEWPOS	
0EDF 96 79		LDA A	CHGONF	
0EE1 27 03		BEQ	CHAN82	
0EE3 BD 08 3F		JSR	VERLIN	VERIFY CHANGE
0EE6 96 88	CHAN82	LDA A	LSTFLG	
0EE8 27 06		BEQ	CHAN84	
0EEA 7F 00 79		CLR	CHGONF	CLEAR FLAG
0EED 7E 08 A2		JMP	PRINT6	
0EF0 BD 06 C3	CHAN84	JSR	NXTLIN	FIND NEXT LINE
0EF3 DF 4A		STX	NEWPOS	SAVE POINTER
0EF5 9C 93		CPX	TRGLIN	TARGET LINE?
0EF7 26 03		BNE	CHAN86	
0EF9 7C 00 88		INC	LSTFLG	SET LAST FLAG
0EFC 08	CHAN86	INX		BUMP 3 TIMES
0EFD 08		INX		
0EFE 08		INX		
0EFF DF 64		STX	CHGPNT	SAVE POINTER
0F01 7E 0E 31		JMP	CHANG5	REPEAT
0F04 7E 04 41	CHANG9	JMP	ERROR	REPORT ERROR

* SAVE STRING POINTER INFO

0F07 DE 4E	SVSTPT	LDX	STRNGB	GET POINTER
0F09 DF 52		STX	STRGB1	SAVE IT
0F0B DE 50		LDX	STRNGE	
0F0D DF 54		STX	STRGE1	
0F0F 96 7B		LDA A	STRCNT	GET COUNT
0F11 97 71		STA A	STRCN1	SAVE IT
0F13 39		RTS		RETURN

* RESTORE STRING POINTER INFO

0F14 DE 52	RSTSPT	LDX	STRGB1	GET POINTER
0F16 DF 4E		STX	STRNGB	RESTORE
0F18 DE 54		LDX	STRGE1	
0F1A DF 50		STX	STRNGE	
0F1C 96 71		LDA A	STRCN1	GET COUNT
0F1E 97 7B		STA A	STRCNT	RESTORE IT
0F20 39		RTS		RETURN

* OVERLAY ROUTINE

0F21 BD 08 AB	OVERLA	JSR	TSTEMP
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LOCN B1 B2 B3			
0F24 86 20	LDA A	#\$20	SETUP SPACE
0F26 97 95	STA A	DELIM	AS DELIMITER
0F28 7F 00 8C	CLR	DRCTN	
0F2B DE 44	LDX	BUFPNT	SET POINTER TO BUFFER
0F2D A6 00	LDA A	0,X	GET A CHAR.
0F2F 81 0D	CMF A	#CRGRET	
0F31 27 12	BEQ	OVRLA1	
0F33 BD 07 3B	JSR	CLASS	
0F36 5D	TST B		
0F37 27 03	BEQ	OVRLA0	
0F39 7E 04 71	JMP	SYNERR	REPORT ERROR
0F3C 97 95	OVRLA0 STA A	DELIM	SET DELIMITER
0F3E 08	INX		
0F3F A6 00	LDA A	0,X	GET CHARACTER
0F41 81 0D	CMF A	#CRGRET	
0F43 26 2C	BNE	OVRL35	
0F45 DE 4A	OVRLA1 LDX	NEWPOS	SET POINTER
0F47 BD 08 AF	OVRL11 JSR	OUTLIN	OUTPUT CUR. LINE
0F4A 96 6A	LDA A	NUMFLG	
0F4C 26 05	BNE	OVRL12	
0F4E CE 0F D2	LDX	#OVRLST+8	POINT TO STRING
0F51 20 03	BRA	OVRL16	
0F53 CE 0F CA	OVRL12 LDX	#OVRLST	POINT TO STRING
0F56 BD 04 83	OVRL16 JSR	FSTRNG	OUTPUT IT
0F59 CE 00 BB	LDX	#BUFFER	POINT TO IN BUFFER
0F5C BD 04 99	OVRLA2 JSR	INCHAR	GET A CHAR.
0F5F 27 E4	BEQ	OVRLA1	
0F61 81 0D	CMF A	#CRGRET	
0F63 27 07	BEQ	OVRLA3	
0F65 A7 00	STA A	0,X	
0F67 BD 04 BB	JSR	BUFLIM	
0F6A 20 F0	BRA	OVRLA2	
0F6C A7 00	OVRLA3 STA A	0,X	
0F6E CE 00 BB	LDX	#BUFFER	POINT TO BUFFER
0F71 DF 44	OVRL35 STX	BUFPNT	
0F73 C6 0D	LDA B	#CRGRET	
0F75 DE 4A	LDX	NEWPOS	POINT TO POSITION
0F77 08	INX		
0F78 08	INX		
0F79 08	INX		
0F7A DF 40	STX	TEMP	SAVE POINTER
0F7C DE 44	OVRLA4 LDX	BUFPNT	
0F7E A6 00	OVRL41 LDA A	0,X	GET A CHAR.
0F80 08	INX		BUMP POINTER
0F81 DF 44	STX	BUFPNT	SAVE IT
0F83 81 0D	CMF A	#CRGRET	
0F85 27 3B	BEQ	OVRLA7	
0F87 DE 40	LDX	TEMP	
0F89 7D 00 8C	TST	DRCTN	
0F8C 26 08	BNE	OVRL43	
0F8E E1 00	CMF B	0,X	CHECK IT
0F90 27 08	BEQ	OVRLA5	
0F92 91 95	CMF A	DELIM	IS IT DELIMITER?
0F94 27 02	BEQ	OVRL45	
0F96 A7 00	OVRL43 STA A	0,X	PUT CHARACTER

LOCN	B1	B2	B3			
0F98	08			OVRL45	INX	BUMP POINTER
0F99	DF	40			STX	TEMP
0F9B	20	DF			BRA	OVRLA4
0F9D	96	8C		OVRLA5	LDA A	DRCTN
0F9F	26	21			BNE	OVRLA7
0FA1	4F				CLR A	
0FA2	97	8D			STA A	CHRCNT
0FA4	DE	44			LDX	BUFPNT
0FA6	4C			OVRL55	INC A	
0FA7	E1	00			CMP B	0,X
0FA9	27	03			BEQ	OVRLA6
0FAB	08				INX	BUMP THE POINTER
0FAC	20	F8			BRA	OVRL55
0FAE	97	8E		OVRLA6	STA A	CHRCNT+1
0FB0	DE	40			LDX	TEMP
0FB2	DF	58			STX	SPCPT1
0FB4	86	01			LDA A	#1
0FB6	97	8C			STA A	DRCTN
0FB8	BD	0C	08		JSR	MAKSPC
0FBB	C6	0D			LDA B	#CRGRET
0FBD	DE	44			LDX	BUFPNT
0FBF	09				DEX	
0FC0	20	BC			BRA	OVRL41
0FC2	DE	4A		OVRLA7	LDX	NEWPOS
0FC4	BD	08	3F		JSR	VERLIN
0FC7	7E	03	8A	OVRLA8	JMP	EDIT
						RETURN
0FCA	20			OVRLST	FCC	' OVERLAY '
0FCB	4F					
0FCC	56					
0FCD	45					
0FCE	52					
0FCF	4C					
0FD0	41					
0FD1	59					
0FD2	20					
0FD3	04				FCB	4

* MOVE COMMAND

0FD4	7C	00	80	MOVE A	INC	MOVFLG	SET FLAG
0FD7	8D	1A		BSR		COPY	GO DO COPY
0FD9	96	8B		LDA A	CPYDRC		WHICH DIRECTION?
0FDB	97	8C		STA A	DRCTN		
0FDD	DE	93		LDX	TRGLIN		GET TARGET
0FDF	DF	5A		STX	SPCPT2		
0FE1	DE	4A		LDX	NEWPOS		GET POSITION
0FE3	DF	58		STX	SPCPT1		
0FE5	DE	48		LDX	CURPOS		GET CURRENT POS.
0FE7	DF	93		STX	TRGLIN		MAKE IT TARGET
0FE9	BD	0D	43	JSR	DELCHR		DELETE LINES
0FEC	DE	93		LDX	TRGLIN		
0FEE	DF	48		STX	CURPOS		FIX POSITION
OFF0	7E	08	A2	JMP	PRINT6		

LOCN B1 B2 B3

* COPY LINES COMMAND

OFF3 DE 44	COPY	LDX	BUFNT	POINT TO BUFFER
OFF5 7C 00 76		INC	NXTFLG	SET FLAG
OFF8 7C 00 75		INC	LINFLG	SET FLAG
OFFB BD 04 E9		JSR	FINDT	FIND TARGET
OFFE 9C 99		CPX	FILEND	
1000 27 1A		BEQ	COPY0	
1002 7F 00 75		CLR	LINFLG	
1005 7F 00 76		CLR	NXTFLG	
1008 9C 97		CPX	FILBEG	BEGINNING?
100A 26 04		BNE	COPY02	
100C 9C 4A		CPX	NEWPOS	
100E 27 04		BEQ	COPY05	
1010 96 8C	COPY02	LDA A	DRCTN	FIX DIRECTION
1012 97 8B		STA A	CPYDRC	
1014 7F 00 8C	COPY05	CLR	DRCTN	
1017 BD 08 21		JSR	TSTOVR	LIMITS?
101A 27 03		BEQ	COPY1	
101C 7E 04 5F	COPY0	JMP	NOTFND	REPORT ERROR
101F BD 07 E6	COPY1	JSR	FNDCRT	FIND NEXT C.R.
1022 08		INX		BUMP POINTER ONE
1023 DF 58		STX	SPCPT1	
1025 DE 44		LDX	BUFNT	
1027 BD 04 E9		JSR	FINDT	GO FIND TARGET
102A BD 08 21		JSR	TSTOVR	LIMITS?
102D 26 ED		BNE	COPY0	
102F 7D 00 8C		TST	DRCTN	DIRECTION?
1032 26 08		BNE	COPY15	
1034 DE 4A		LDX	NEWPOS	GET POINTER
1036 DF 40		STX	TEMP	
1038 DE 93		LDX	TRGLIN	
103A 20 06		BRA	COPY18	
103C DE 93	COPY15	LDX	TRGLIN	GET TARGET
103E DF 40		STX	TEMP	SAVE IT
1040 DE 4A		LDX	NEWPOS	
1042 BD 07 E6	COPY18	JSR	FNDCRT	GET NEXT C.R.
1045 08		INX		BUMP POINTER
1046 DF 93		STX	TRGLIN	SET TARGET
1048 DE 40		LDX	TEMP	
104A DF 4A		STX	NEWPOS	
104C 4F		CLR A		CLEAR ACCUMULATORS
104D 5F		CLR B		
104E 08	COPY2	INX		BUMP THE POINTER
104F 4C		INC A		BUMP COUNT
1050 26 01		BNE	COPY25	
1052 5C		INC B		
1053 9C 93	COPY25	CPX	TRGLIN	FINISHED?
1055 27 10		BEQ	COPY3	
1057 9C 58		CPX	SPCPT1	OVERLAP?
1059 26 F3		BNE	COPY2	
105B CE 10 B4		LDX	#OVL PST	POINT TO STRING
105E BD 04 83		JSR	PSTRNG	OUTPUT IT

LOCN	B1	B2	B3			
1061	7F	00	6C	CLR	MSLFLG	
1064	7E	03	8A	JMP	EDIT	RETURN
1067	97	8E		COPY3	STA A	CHRCNT+1
						SAVE COUNT
1069	D7	8D		STA B	CHRCNT	
106B	86	01		LDA A	#1	SET DIRECTION
106D	97	8C		STA A	DRCTN	
106F	BD	0C	08	JSR	MAKSPC	MAKE ROOM FOR LINES
1072	DE	5A		LDX	SPCPT2	
1074	DF	48		STX	CURPOS	SET CUR. POSITION
1076	DE	58		LDX	SPCPT1	
1078	DF	42		STX	XSAVE	
107A	DE	93		LDX	TRGLIN	GET TARGET
107C	DF	58		STX	SPCPT1	
107E	DE	4A		LDX	NEWPOS	
1080	DF	40		STX	TEMP	SET POINTER
1082	BD	0C	64	JSR	MAK555	MOVE LINES
1085	DE	42		LDX	XSAVE	RESTORE POINTER
1087	7F	00	72	CLR	OVRBEG	
108A	BD	07	F0	JSR	BAKONE	MOVE BACK ONE
108D	96	72		LDA A	OVRBEG	LIMIT?
108F	27	18		BEQ	COPY5	
1091	BD	07	A3	JSR	CLRNUM	CLEAR NUMBER
1094	7C	00	83	COPY4	INC	CHKFLG
						SET FLAG
1097	BD	06	B0	JSR	RENUM2	GO RENUMBER
109A	DE	48		LDX	CURPOS	GET POSITION
109C	BD	07	F0	JSR	BAKONE	
109F	DF	48		STX	CURPOS	SET CUR. POSITION
10A1	96	80		LDA A	MOVFLG	MOVE?
10A3	27	01		BEQ	COPY45	
10A5	39			RTS		RETURN
10A6	7E	08	A2	COPY45	JMP	PRINT6
10A9	BD	06	98	COPY5	JSR	GETNUM
						GET LINE NUMBER
10AC	4F			CLR A		
10AD	97	92		STA A	NUMBER+2	
10AF	BD	08	0F	JSR	UPONE	
10B2	20	E0		BRA	COPY4	
10B4	53			OVLPST	FCC	'SOURCE OVERLAPS DESTINATION'
10B5	4F					
10B6	55					
10B7	52					
10B8	43					
10B9	45					
10BA	20					
10BB	4F					
10BC	56					
10BD	45					
10BE	52					
10BF	4C					
10C0	41					
10C1	50					
10C2	53					
10C3	20					
10C4	44					
10C5	45					

LOCN B1 B2 B3
 10C6 53
 10C7 54
 10C8 49
 10C9 4E
 10CA 41
 10CB 54
 10CC 49
 10CD 4F
 10CE 4E
 10CF 04

FCB 4

* TAB SET COMMAND

10D0	CE	00	9D	TAB	LDX	#TABBUF	SET POINTER
10D3	DF	9B			STX	TABPNT	
10D5	DE	44		TAB2	LDX	BUFPNT	POINT TO BUFFER
10D7	BD	04	92		JSR	SKIPSP	
10DA	DF	44			STX	BUFPNT	SAVE
10DC	BD	06	63		JSR	TSTEND	
10DF	27	2F			BEQ	TAB6	
10E1	BD	07	3B		JSR	CLASS	CLASSIFY CHAR.
10E4	C1	01			CMP B	#1	IS IT A NUMBER?
10E6	27	07			BEQ	TAB4	
10E8	22	2E			BHI	TAB8	
10EA	08				INX		BUMP THE POINTER
10EB	DF	44			STX	BUFPNT	SAVE IT
10ED	20	E6			BRA	TAB2	
10EF	BD	07	55	TAB4	JSR	BCICON	GET COLUMN
10F2	DF	44			STX	BUFPNT	
10F4	5F				CLR B		
10F5	BD	08	38		JSR	TSTNUM	IS IT ZERO?
10F8	27	16			BEQ	TAB6	
10FA	5C			TAB5	INC B		BUMP COUNT
10FB	37				PSH B		
10FC	BD	08	2A		JSR	DECNUM	DEC THE COUNT
10FF	33				PUL B		
1100	26	F8			BNE	TAB5	
1102	DE	9B			LDX	TABPNT	POINT TO TABS
1104	E7	00			STA B	0,X	SAVE COUNT
1106	08				INX		
1107	DF	9B			STX	TABPNT	FIX TAB POINTER
1109	8C	00	B1		CPX	#TABEND	
110C	27	02			BEQ	TAB6	
110E	20	C5			BRA	TAB2	
1110	4F			TAB6	CLR A		
1111	DE	9B			LDX	TABPNT	
1113	A7	00			STA A	0,X	CLEAR TAB
1115	7E	09	30		JMP	NUMSE6	
1118	7E	04	71	TAB8	JMP	SYNERR	REPORT ERROR

* PRINT HEADER COMMAND

111B CE 00 9D HEADER LDX #TABBUF SET POINTER

LOCN	B1	B2	B3			
111E	DF	9B			STX	TABPNT
1120	DE	44			LDX	BUFPNT
1122	BD	04	92		JSR	SKIPSP
						SKIP ALL SPACES
1125	BD	06	63		JSR	TSTEND
1128	27	1C			BEQ	HEAD42
112A	BD	07	3B	HEADE2	JSR	CLASS
						CLASSIFY CHAR.
112D	C1	01			CMP B	#1
						IS IT NUMBER?
112F	26	E7			BNE	TAB8
						ERROR
1131	BD	07	55		JSR	BCDCON
						GET NUMBER COUNT
1134	DF	44			STX	BUFPNT
1136	BD	08	38		JSR	TSTNUM
						IS IT ZERO?
1139	27	40			BEQ	HEADE7
113B	5F				CLR B	
113C	5C			HEADE3	INC B	BUMP COUNTER
113D	37				PSH B	
113E	BD	08	2A		JSR	DECNUM
						DEC NUMBER
1141	33				PUL B	
1142	26	F8			BNE	HEADE3
1144	D7	96		HEADE4	STA B	HEDCNT
						SAVE COUNT
1146	BD	07	A3	HEAD42	JSR	CLRNUM
						CLEAR NUMBER
1149	BD	04	4E		JSR	PCRLF
						OUTPUT C.R. L.F.
114C	96	6A			LDA A	NUMFLG
						LINE NUMBERS ON?
114E	27	08			BEQ	HEADE5
1150	C6	08			LDA B	#8
						SET COUNT
1152	BD	08	CD	HEAD45	JSR	OUTSPC
						OUT SPACE
1155	5A				DEC B	
1156	26	FA			BNE	HEAD45
1158	BD	08	CD	HEADE5	JSR	OUTSPC
115B	5F				CLR B	CLEAR COUNT
115C	37			HEAD55	PSH B	
115D	BD	06	7C		JSR	INCNUM
						BUMP NUMBER
1160	33				PUL B	
1161	5C				INC B	BUMP COUNT
1162	DE	9B			LDX	TABPNT
						GET TAB COL.
1164	E1	00			CMP B	0,X
						THERE?
1166	26	0A			BNE	HEAD57
1168	86	2D			LDA A	#'-
						SET UP '--
116A	BD	02	09		JSR	OUTCH
						OUTPUT IT
116D	08				INX	BUMP POINTER
116E	DF	9B			STX	TABPNT
1170	20	05			BRA	HEAD58
1172	96	91		HEAD57	LDA A	NUMBER+1
						GET NUMBER
1174	BD	09	17		JSR	OUTH
						OUTPUT IT
1177	D1	96		HEAD58	CMP B	HEDCNT
1179	26	E1			BNE	HEAD55
						REPEAT TIL DONE
117B	7E	09	30	HEADE7	JMP	NUMSE6

* SET UP ZONE COLUMN COMMAND

117E	DE	44	SZONE	LDX	BUFPNT	POINT TO BUFFER
1180	BD	04	92	JSR	SKIPSP	
1183	BD	06	63	JSR	TSTEND	
1186	27	0A		BEQ	SZONE2	
1188	BD	07	3B	JSR	CLASS	CLASSIFY CHARACTER

LOCN B1 B2 B3				
118B C1 01		CMP B	#1	IS IT A NUMBER?
118D 27 0A		BEQ	SZONE3	
118F 22 38		BHI	SZONE8	
1191 08		INX		
1192 DF 44	SZONE2	STX	BUFPNT	SAVE POINTER
1194 CE 00 01		LDX	##0001	SET COLUMN 1
1197 20 07		BRA	SZONE4	
1199 BD 07 55	SZONE3	JSR	BCDCON	GET NUMBER
119C DF 44		STX	BUFPNT	SAVE POINTER
119E DE 90		LDX	NUMBER	
11A0 DF 5E	SZONE4	STX	ZONE1	FIX ZONE1
11A2 DE 44		LDX	BUFPNT	
11A4 BD 04 92	SZONE5	JSR	SKIPSP	SKIP ALL SPACES
11A7 BD 06 63		JSR	TSTEND	
11AA 27 0C		BEQ	SZONE6	
11AC BD 07 3B		JSR	CLASS	GO CLASSIFY
11AF C1 01		CMP B	#1	IS IT A NUMBER?
11B1 27 0A		BEQ	SZONE7	
11B3 22 14		BHI	SZONE8	ERROR
11B5 08		INX		BUMP POINTER
11B6 20 EC		BRA	SZONE5	
11B8 CE 01 36	SZONE6	LDX	##0136	SET COLUMN 136
11BB 20 07		BRA	SZONE7	
11BD BD 07 55	SZONE7	JSR	BCDCON	GET NUMBER
11C0 DF 44		STX	BUFPNT	SAVE POINTER
11C2 DE 90		LDX	NUMBER	
11C4 DF 60	SZONE7	STX	ZONE2	SET ZONE2
11C6 7E 09 30		JMP	NUMSE6	
11C9 7E 04 41	SZONE8	JMP	ERROR	REPORT ERROR

* SET SPECIAL CHARATERS COMMAND

11CC DE 44	SET	LDX	BUFPNT	SET POINTER
11CE BD 04 92		JSR	SKIPSP	
11D1 DF 44		STX	BUFPNT	
11D3 DF 40		STX	TEMP	SAVE POINTER
11D5 CE 12 41		LDX	#CHRTBL	POINT TO TABLE
11D8 7E 04 00		JMP	EDIT6	GO FIND NAME

* SET SPECIALS HERE

* TAB

11DB CE 00 B2	STAB	LDX	#TABCH	POINT TO TAB CHAR
11DE 20 0D		BRA	SETC	

* FILL

11E0 CE 00 B3	SFILL	LDX	#FILL	POINT TO FILL
11E3 20 08		BRA	SETC	

* EOL

11E5 CE 00 B5	SEOL	LDX	#EOL	POINT TO EOL CHAR
11E8 20 03		BRA	SETC	

* LINO

11EA CE 00 B4	SLINO	LDX	#LINO	POINT TO IT
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LOCN B1 B2 B3

* SET THE CHARACTER

11ED	DF	40	SETC	STX	TEMP	SAVE POINTER
11EF	DE	44		LDX	BUFPNT	GO TO BUFFER
11F1	BD	04 92		JSR	SKIPSP	
11F4	81	3D		CMP A	#'=	IS IT =
11F6	26	3F		BNE	SETC8	ERROR
11F8	8D	40		BSR	CHFRQU	
11FA	26	3B		BNE	SETC8	ERROR
11FC	8D	3C		BSR	CHFRQU	
11FE	26	04		BNE	SETC2	
1200	4F			CLR A		SET NULL CHAR.
1201	36			PSH A		
1202	20	0F		BRA	SETC4	
1204	BD	07 3B	SETC2	JSR	CLASS	GO CLASSIFY
1207	5D			TST B		
1208	26	2D		BNE	SETC8	ERROR?
120A	81	0D		CMP A	#CRGRET	
120C	27	29		BEQ	SETC8	
120E	36			PSH A		SAVE CHAR
120F	8D	29		BSR	CHFRQU	
1211	26	24		BNE	SETC8	ERROR
1213	08		SETC4	INX		
1214	DF	44		STX	BUFPNT	SAVE POSITION
1216	BD	09 A4		JSR	TFORCR	TEST END
1219	32			PUL A		GET CHAR
121A	DE	40		LDX	TEMP	RESTORE POINTER
121C	8C	00 B3		CPX	#FILL	IS IT FILL CHAR?
121F	26	07		BNE	SETC5	
1221	4D			TST A		
1222	26	0E		BNE	SETC6	
1224	86	20		LDA A	#'	SETUP SPACE
1226	20	0A		BRA	SETC6	
1228	8C	00 B4	SETC5	CPX	#LINO	IS IT LINO?
122B	26	05		BNE	SETC6	
122D	4D			TST A		
122E	26	02		BNE	SETC6	
1230	86	23		LDA A	#'#	SET IT
1232	A7	00	SETC6	STA A	0,X	
1234	7E	09 30		JMP	NUMSE6	RETURN
1237	7E	04 71	SETC8	JMP	SYNERR	REPORT ERROR

* CHECK FOR QUOTE

123A	08		CHFRQU	INX		BUMP POINTER
123B	BD	04 92		JSR	SKIPSP	SKIP SPACES
123E	81	27		CMP A	#''	
1240	39			RTS		

* SPECIAL CHARACTER TABLE

1241	54		CHRTBL	FCC	'TAB'	
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LOCN B1 B2 B3

1242	41			
1243	42			
1244	00		FCB	0
1245	11	DB	FDB	STAB
1247	46		FCC	'FILL'
1248	49			
1249	4C			
124A	4C			
124B	00		FCB	0
124C	11	E0	FDB	SFILL
124E	45		FCC	'EOL'
124F	4F			
1250	4C			
1251	00		FCB	0
1252	11	E5	FDB	SEOL
1254	4C		FCC	'LINO'
1255	49			
1256	4E			
1257	4F			
1258	00		FCB	0
1259	11	EA	FDB	SLINO
125B	00		FCB	0

* EXPAND TABS COMMAND

125C	BD	08	A8	EXPAND	JSR	TSTEMP	
125F	DE	44			LDX	BUFPNT	GET POINTER
1261	BD	04	E9		JSR	FINDT	FIND TARGET
1264	DE	4A			LDX	NEWPOS	SAVE IT
1266	86	01			LDA	A	#1
1268	97	8A			STA	A	PRNFLG
126A	DF	48		EXPAN1	STX	CURPOS	SET CURRENT
126C	9C	93			CPX	TRGLIN	LAST LINE?
126E	26	03			BNE	EXPAN2	
1270	7F	00	8A		CLR	PRNFLG	CLEAR FLAG
1273	8D	10		EXPAN2	BSR	EXPLIN	GO DO LINE
1275	96	8A			LDA	A	PRNFLG
1277	27	09			BEQ	EXPAN5	DONE?
1279	DE	4A			LDX	NEWPOS	GET POINTER
127B	BD	06	C3		JSR	NXTLIN	FIND NEXT LINE
127E	DF	4A			STX	NEWPOS	SAVE
1280	20	E8			BRA	EXPAN1	
1282	7E	08	A2	EXPAN5	JMP	PRINT6	

* EXPAND TABS IN ONE LINE

1285	96	B2		EXPLIN	LDA	A	TABCH	
1287	91	B3			CMP	A	FILL	CHECK IF FILL=TAB
1289	27	51			BEQ		EXPLI7	
128B	CE	00	9D		LDX		#TABBUF	POINT TO TABS
128E	DF	9B			STX		TABPNT	
1290	E6	00			LDA	B	0,X	GET COLUMN
1292	27	48			BEQ		EXPLI7	

LOCN B1 B2 B3			
1294 5F		CLR B	CLEAR COUNT
1295 D7 8D		STA B	CHRCNT
1297 DE 4A		LDX	NEWPOS
1299 9C 99		CPX	FILEND
129B 26 03		BNE	EXPLI1
129D 7E 03 8A		JMP	EDIT
12A0 08	EXPLI1	INX	BUMP 3 TIMES
12A1 08		INX	PAST LINE NO.
12A2 08		INX	
12A3 5C	EXPLI2	INC B	BUMP COUNTER
12A4 A6 00		LDA A 0,X	CHECK FOR TAB
12A6 81 0D		CMP A #CRGRET	
12A8 27 32		BEQ	EXPLI7
12AA 91 B2		CMP A TABCH	IS IT TAB?
12AC 27 03		BEQ	EXPLI3
12AE 08		INX	BUMP THE POINTER
12AF 20 F2		BRA	EXPLI2
12B1 DF 40	EXPLI3	STX	TEMP
12B3 DE 9B		LDX	TABPNT
12B5 E1 00	EXPL35	CMP B 0,X	CHECK COLUMN
12B7 24 1E		BCC	EXPLI6
12B9 86 FF		LDA A #FF	SET COUNT
12BB 4C	EXPLI4	INC A	
12BC 5C		INC B	
12BD E1 00		CMP B 0,X	TAB COL. YET?
12BF 26 FA		BNE	EXPLI4
12C1 97 8E		STA A CHRCNT+1	SAVE COUNT
12C3 DE 40		LDX	TEMP
12C5 DF 58		STX	SPCPT1
12C7 BD 0C 08		JSR	MAKSPC
12CA D6 8E		LDA B CHRCNT+1	GO MAKE ROOM
12CC 5C		INC B	
12CD 96 B3		LDA A FILL	GET FILL CHARACTER
12CF A7 00	EXPLI5	STA A 0,X	PUT CHARACTER
12D1 08		INX	
12D2 5A		DEC B	DEC COUNT
12D3 26 FA		BNE	EXPLI5
12D5 20 AE		BRA	EXPLIN
12D7 08	EXPLI6	INX	REPEAT
12D8 A6 00		LDA A 0,X	BUMP POINTER
12DA 26 D9		BNE	EXPL35
12DC 39	EXPLI7	RTS	RETURN

* APPEND COMMAND

12DD BD 08 A8	APPEND	JSR	TSTEMP	
12E0 DE 44		LDX	BUFPNT	GET POINTER
12E2 BD 04 92		JSR	SKIPSP	
12E5 BD 06 63		JSR	TSTEND	ALL?
12E8 26 03		BNE	APPEN1	
12EA 7E 04 71	APPEN0	JMP	SYNERR	
12ED BD 07 3B	APPEN1	JSR	CLASS	GO CLASSIFY
12F0 5D		TST B		
12F1 26 F7		BNE	APPEN0	

LOCN B1 B2 B3			
12F3 BD 05 FA		JSR	SETDEL
12F6 BD 07 3B		JSR	CLASS
12F9 C1 01		CMP B	#1
12FB 26 13		BNE	APPEN3
12FD BD 07 55		JSR	BCDCON
1300 BD 08 38		JSR	TSTNUM
1303 27 0B		BEQ	APPEN3
1305 4F		CLR A	
1306 4C	APPEN2	INCA	BUMP COUNTER
1307 36		PSH A	
1308 BD 08 2A		JSR	DECNUM
130B 32		PUL A	RESTORE COUNT
130C 26 F8		BNE	APPEN2
130E 97 7A		STA A	APPCOL
1310 BD 0F 07	APPEN3	JSR	SVSTPT
1313 DE 44		LIX	BUFFNT
1315 BD 04 E9		JSR	FINDT
1318 BD 0F 14		JSR	RSTSPT
131B 7F 00 8D		CLR	CHRCNT
131E 7C 00 8A		INC	PRNFLG
1321 DE 4A		LIX	NEWPOS
1323 9C 93	APPE35	CPX	TRGLIN
1325 26 03		BNE	APPEN4
1327 7F 00 8A		CLR	PRNFLG
132A 08	APPEN4	INX	CLEAR FLAG
132B 08		INX	BUMP 3 TIMES
132C 08		INX	
132D 96 7A		LDA A	APPCOL
132F 26 06		BNE	APPEN5
1331 09		DEX	
1332 BD 07 E6		JSR	FNDCRT
1335 20 37		BRA	APPEN7
1337 16	APPEN5	TAB	
1338 5A	APPE53	DEC B	DEC COUNT
1339 27 1C		BEQ	APPE65
133B A6 00		LDA A	0,X
133D 81 0D		CMP A	#CRGRET
133F 27 03		BEQ	APPEN6
1341 08		INX	BUMP POINTER
1342 20 F4		BRA	APPE53
1344 DF 58	APPEN6	STX	SPCPT1
1346 D7 8E		STA B	CHRCNT+1
1348 37		PSH B	
1349 BD 0C 08		JSR	MAKSPC
134C 33		PUL B	
134D 86 20		LDA A	#'
134F A7 00	APPE63	STA A	0,X
1351 08		INX	BUMP POINTER
1352 5A		DEC B	DEC THE COUNT
1353 26 FA		BNE	APPE63
1355 20 17		BRA	APPEN7
1357 DF 58	APPE65	STX	SPCPT1
1359 DF 40		STX	TEMP
135B A6 00	APPE66	LDA A	0,X
135D 81 0D		CMP A	#CRGRET
			GET CHAR.
			IS IT C.R.?

LOCN	B1	B2	B3			
135F	27	04		BEQ	APPE67	
1361	08			INX		
1362	5C			INC	B	
1363	20	F6		BRA	APPE66	
1365	D7	8E		STA	B	APPE67
1367	DF	5A		STX		CHRCNT+1
1369	BD	0D	43	JSR		DELCHR
136C	DE	40		LDX		TEMP
136E	DF	58		STX		SPCPT1
1370	96	7B		LDA	A	STRCNT
1372	27	12		BEQ		APPE78
1374	97	8E		STA	A	CHRCNT+1
1376	BD	0C	08	JSR		MAKSPC
1379	DE	50		LDX		STRNGE
137B	DF	58		STX		SPCPT1
137D	DE	4E		LDX		STRNGB
137F	DF	40		STX		TEMP
1381	BD	0C	64	JSR		MAKS55
1384	DE	5A		LDX		SPCPT2
1386	5F			CLR	B	APPE78
1387	BD	07	F6	JSR		BAKON2
138A	BD	08	3F	JSR		VERLIN
138D	96	8A		LDA	A	PRNFLG
138F	27	07		BEQ		APPEN8
1391	BD	06	C3	JSR		NXTLIN
1394	DF	4A		STX		NEWPOS
1396	20	8B		BRA		APPE35
1398	DF	48		STX		CURPOS
139A	7E	08	A2	JMP		APPEN9

* SAVE CURRENT FILE ON TAPE

139D	BD	09	A4	SAVE	JSR	TFORCR	
13A0	DE	97		LDX		FILBEG	SET POINTER
13A2	DF	58		STX		SPCPT1	
13A4	DE	99		LDX		FILEND	
13A6	DF	5A		STX		SPCPT2	SET END
13A8	BD	29		BSR		RECORD	GO RECORD IT
13AA	7E	09	30	SAVE4	JMP	NUMSE6	

* WRITE PART OF FILE TO TAPE

13AD	BD	08	A8	WRITE	JSR	TSTEMP	
13B0	DE	44		LDX		BUFPNT	SET POINTER
13B2	BD	04	E9	JSR		FINDT	FIND TARGET
13B5	96	8C		LDA	A	DRCTN	CHECK DIRECTION
13B7	26	0C		BNE		WRITE2	
13B9	BD	07	E6	JSR		FNDCRT	
13BC	08			INX			
13BD	DF	5A		STX		SPCPT2	SET POINTER
13BF	DE	4A		LDX		NEWPOS	
13C1	DF	58		STX		SPCPT1	SET BEGINNING
13C3	20	0A		BRA		WRITE4	

LOCN	B1	B2	B3			
13C5	DF	58		WRITE2	STX	SPCPT1
13C7	DE	4A			LIX	NEWPOS
13C9	BD	07	E6		JSR	FND CRT
13CC	08				INX	
13CD	DF	5A			STX	SPCPT2
13CF	8D	02		WRITE4	BSR	RECORD
13D1	20	D7		WRITE5	BRA	SAVE4

SET END
GO RECORD IT

* RECORD RECORD

13D3	96	B9		RECORD	LDA A	RONCH	
13D5	BD	02	0F		JSR	TOUCH	
13D8	8D	2B			BSR	TDELAY	GO DELAY
13DA	DE	58			LIX	SPCPT1	SET POINTER
13DC	9C	5A		RECOR2	CPX	SPCPT2	DONE?
13DE	27	15			BEQ	RECOR4	
13E0	08				INX		GET PAST NUMBERS
13E1	08				INX		
13E2	08				INX		
13E3	A6	00		RECO25	LDA A	0,X	GET A CHARACTER
13E5	81	0D			CMP A	#CRGRET	
13E7	27	06			BEQ	RECOR3	
13E9	BD	02	0F		JSR	TOUCH	OUTPUT IT
13EC	08				INX		BUMP THE POINTER
13ED	20	F4			BRA	RECO25	
13EF	BD	02	0F	RECOR3	JSR	TOUCH	OUTPUT IT
13F2	08				INX		
13F3	20	E7			BRA	RECOR2	
13F5	86	1A		RECOR4	LDA A	#\$1A	SET CONTROL Z
13F7	BD	02	0F		JSR	TOUCH	OUTPUT IT
13FA	CE	FF	FF	RECOR5	LIX	#\$FFFF	SET COUNT
13FD	09			RECOR6	DEX		
13FE	26	FD			BNE	RECOR6	
1400	96	BA		RECOR7	LDA A	ROFCH	
1402	BD	02	0F		JSR	TOUCH	

* DELAY FOR TAPE

1405	96	B6		TDELAY	LDA A	DELAY	GET FACTOR
1407	27	09		DELAY1	BEQ	DELAY4	
1409	CE	FF	FF		LIX	#\$FFFF	SET COUNT
140C	09			DELAY2	DEX		DEC COUNT
140D	26	FD			BNE	DELAY2	
140F	4A				DEC A		DONE?
1410	20	F5			BRA	DELAY1	
1412	39			DELAY4	RTS		RETURN

* PUT A GAP ON TAPE (40 NULLS)

1413	BD	09	A4	GAP	JSR	TFORCR
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LOCN B1 B2 B3			
1416 96 B9		LDA A	RONCH
1418 BD 02 0F		JSR	TOUCH
141B 8D E8		BSR	TDELAY
141D C6 28		LDA B	#40
141F 4F	GAP2	CLR A	
1420 BD 02 0F		JSR	TOUCH
1423 5A		DEC B	
1424 26 F9		BNE	GAP2
1426 8D D8		BSR	RECOR7
1428 20 A7		BRA	WRITES

TURN ON TAPE

GO DELAY

SETUP COUNT

SET NULL

OUTPUT IT

DEC COUNT

* READ TAPE ROUTINE

142A BD 09 A4	READ	JSR	TFORCR	
142D 96 B7	2405	LDA A	TONCH	
142F BD 02 0F	2C038A	JSR	TOUCH	
1432 8D D1		BSR	TDELAY	GO DELAY
1434 BD 07 A3		JSR	CLRNUM	
1437 DE 99		LDX	FILEND	GET END
1439 DF 40		STX	TEMP	
143B 9C 97		CPX	FILBEG	EMPTY?
143D 27 08		BEQ	READ1	
143F BD 07 F0		JSR	BAKONE	MOVE BACK ONE
1442 BD 06 98		JSR	GETNUM	GET NUMBER
1445 DE 99		LDX	FILEND	POINT TO END
1447 8D 35	READ1	BSR	RDCHKE	
1449 8D 33		BSR	RDCHKE	
144B 8D 31		BSR	RDCHKE	
144D BD 02 0C	READ2	JSR	TINCH	GET CHAR FROM TAPE
1450 81 0D		CMP A	#CRGRET	
1452 27 0C		BEQ	READ3	
1454 81 1A		CMP A	#1A	IS IS CNTRL Z?
1456 27 0C		BEQ	READ4	
1458 81 1F		CMP A	#1F	
145A 23 F1		BLS	READ2	
145C 8D 21		BSR	RDCHK2	
145E 20 ED		BRA	READ2	
1460 8D 1D	READ3	BSR	RDCHK2	
1462 20 E3		BRA	READ1	REPEAT
1464 5F	READ4	CLR B		
1465 BD 07 F6		JSR	BAKON2	FIND LAST C.R.
1468 DF 99	READ5	STX	FILEND	SET NEW END
146A 7C 00 83		INC	CHKFLG	
146D 96 B8		LDA A	TOFCH	
146F BD 02 0F		JSR	TOUCH	
1472 9C 40		CPX	TEMP	
1474 27 05		BEQ	READ6	
1476 DE 40		LDX	TEMP	
1478 BD 06 B0		JSR	RENUM2	GO NUMBER NEW LINES
147B 7E 09 90	READ6	JMP	BOTTO1	

BFPNT: Filevane

BDFCOF Run

* READ AND CHECK END

BDFDF7 ROFF

LOCN	B1	B2	B3				
147E	4F			RDCHKE	CLR A		CLEAR BYTE
147F	BC	02	12	RDCHK2	CPX	MEMEND	END OF MEMORY?
1482	27	04			BEQ	RDCHK3	
1484	A7	00			STA A	0,X	PUT CHAR
1486	08				INX		BUMP THE POINTER
1487	39				RTS		RETURN
1488	BD	02	0C	RDCHK3	JSR	TINCH	GET CHAR FROM TAPE
148B	81	1A			CMP A	##1A	IS IT TERM? 03
148D	26	F9			BNE	RDCHK3	
148F	20	D3			BRA	READ4	

1491	0D			FCB	\$0D		SET END !!
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1492		BEGPNT	EQU	*			
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				ORG	\$A048		
--	--	--	--	-----	--------	--	--

A048	02	00		FDB	START		
------	----	----	--	-----	-------	--	--

				END			
--	--	--	--	-----	--	--	--

SYMBOL TABLE:

ALLFLG 0077	APPCOL 007A	APPEND 12DD	APPEN0 12EA	APPEN1 12ED
APPEN2 1306	APPEN3 1310	APPEN4 132A	APPEN5 1337	APPEN6 1344
APPEN7 136E	APPEN8 1398	APPEN9 139A	APPE35 1323	APPE53 1338
APPE63 134F	APPE65 1357	APPE66 135B	APPE67 1365	APPE72 1374
APPE78 1386	BACKSP 0008	BAKONE 07F0	BAKON2 07F6	BAKON4 0807
BAKON5 0808	BAKON6 080B	BCDCON 0755	BCDC01 0757	BCDC02 0764
BCDC04 0769	BCDC05 0778	BCDC06 077C	BCDC07 078B	BCDC08 079A
BCDC15 0761	BCDC65 0787	BCDC67 0789	BEGPNT 1492	BELL 0007
BFRSTR 0DB4	BMPFLG 007D	BMPNUM 066A	BMPNU4 0674	BOTTOM 098E
BOTTO1 0990	BOTTO2 0998	BUFFER 00BB	BUFLIM 04BB	BUFPNT 0044
BUFSAV 0046	CFIND 09CF	CFIND1 09E4	CFIND2 0A08	CFIND3 0A10
CFIND4 0A1B	CFIND5 0A25	CFIND6 0A28	CFIND9 0A2B	CFIN12 09E8
CFIN13 09FC	CFIN14 0A02	CFIN15 0A05	CFINTST 0A31	CHANGE 0DCB
CHANG1 0DD8	CHANG2 0DE5	CHANG3 0DF4	CHANG4 0E28	CHANG5 0E31
CHANG6 0E71	CHANG8 0EC8	CHANG9 0F04	CHAN12 0DD8	CHAN15 0DDE
CHAN35 0DFE	CHAN37 0E02	CHAN50 0E41	CHAN51 0E44	CHAN52 0E5F
CHAN55 0E6A	CHAN61 0E7C	CHAN62 0E8B	CHAN65 0E91	CHAN66 0E96
CHAN67 0EAA	CHAN80 0ED3	CHAN81 0EDD	CHAN82 0EE6	CHAN84 0EF0
CHAN86 0EFC	CHA510 0E51	CHA675 0EBD	CHFRQU 123A	CHGEND 0066
CHGFLG 0085	CHGONF 0079	CHGPNT 0064	CHKFLG 0083	CHRCNT 008D
CHRTBL 1241	CLASS 073B	CLASS2 074A	CLASS4 0754	CLNRUM 07A3
CMPZN1 0644	CMPZN2 064F	CMPZ14 064E	CMPZ24 0659	CNRSTR 0982
COPY 0FF3	COPY0 101C	COPY02 1010	COPY05 1014	COPY1 101F
COPY15 103C	COPY18 1042	COPY2 104E	COPY25 1053	COPY3 1067
COPY4 1094	COPY45 10A6	COPY5 10A9	CPYDRC 008B	CRGRET 000D
CRLFST 0458	CURPOS 0048	DECCNT 0089	DECNUM 082A	DELAY 00B6

DELAY1 1407	DELAY2 140C	DELAY4 1412	DELCHR 0D43	DELCH2 0D5B
DELCH3 0D62	DELCH4 0D7C	DELCH5 0D7E	DELCD 0018	DELC21 0D61
DELC31 0D64	DELC32 0D73	DELC34 0D77	DELETE 0C8A	DELETO 0CBB
DELET1 0CD6	DELET2 0CE5	DELET3 0CE9	DELET4 0CF4	DELET5 0D1B
DELET6 0D2E	DELET7 0D33	DELE02 0C94	DELE04 0C9D	DELE15 0CCA
DELE25 0CE7	DELE35 0CF1	DELE45 0D13	DELIM 0095	DRCTN 008C
EDIT 038A	EDIT1 0397	EDIT2 03AB	EDIT3 03BC	EDIT4 03C1
EDIT5 03CC	EDIT55 03D1	EDIT56 03F1	EDIT58 03FB	EDIT6 0400
EDIT65 040D	EDIT7 0416	EDIT8 0429	EDIT85 0435	EDIT88 043F
EOL 00B5	EQUALS 0AA5	EQUFLG 007E	ERROR 0441	ERRSTR 044C
EXIT 0989	EXPAND 125C	EXPAN1 126A	EXPAN2 1273	EXPAN5 1282
EXPLIN 1285	EXPLI1 12A0	EXPLI2 12A3	EXPLI3 12B1	EXPLI4 12BB
EXPLI5 12CF	EXPLI6 12D7	EXPLI7 12DC	EXPL35 12B5	FILBEG 0097
FILEND 0099	FILL 00B3	FIND 04FD	FINDL 04D2	FINDL0 04E2
FINDL1 04E4	FINDL2 04E5	FINDT 04E9	FINDT0 04EE	FINDT1 04F8
FINDT2 04FB	FIND1 050A	FIND14 0521	FIND16 0526	FIND2 0532
FIND3 0541	FIND4 054D	FIND5 055A	FIND6 0565	FIND62 057A
FIND63 0584	FIND65 058C	FIND66 0594	FIND67 05A8	FIND7 05A9
FIND71 05B2	FIND72 05B8	FIND73 05C6	FIND74 05D0	FIND75 05DF
FIND77 05F4	FIND78 05F5	FIN702 05AB	FIN711 05B5	FIXZON 065A
FNDCRT 07E6	FNDCR2 07E9	FNDFLG 0070	FNDNUM 07AB	FNDNU1 07B1
FNDNU2 07B8	FNDNU4 07BA	FNDNU5 07DA	FNDN45 07D8	FNONFL 0087
GAP 1413	GAP2 141F	GETNUM 0698	HEADER 111B	HEADE2 112A
HEADE3 113C	HEADE4 1144	HEADE5 1158	HEADE7 117B	HEAD42 1146
HEAD45 1152	HEAD55 115C	HEAD57 1172	HEAD58 1177	HEDCNT 0096
INCAMT 007C	INCH 0206	INCHAR 0499	INCHR1 049C	INCHR3 04AB
INCHR4 04BA	INCH35 04B7	INCNUM 067C	INITLZ 0355	INLMFL 007F
INSERT 0AC8	INSERT1 0AD7	INSERT2 0ADE	INSERT3 0AE6	INSERT4 0AEA
INSERT5 0B1D	INSERT6 0B48	INSERT7 0B7B	INSE42 0AF8	INSE43 0B0A
INSE45 0B13	INSE51 0B2C	INSE52 0B3F	INSE55 0B45	INSE60 0B4F
INSE61 0B53	INSE62 0B6B	INSE71 0B80	INSE72 0BC8	INSE75 0BD6
INS710 0B8F	INS711 0BB5	INS712 0BC2	INS713 0BC5	INZFLG 008F
LASTNO 005C	LINFLG 0075	LINO 00B4	LSTFLG 0088	MAKSPC 0C08
MAKSP1 0C16	MAKSP2 0C21	MAKSP3 0C4E	MAKSP4 0C5A	MAKSP5 0C62
MAKSP6 0C76	MAKS18 0C20	MAKS21 0C23	MAKS22 0C32	MAKS23 0C45
MAKS24 0C49	MAKS55 0C64	MAK222 0C3E	MEMEND 0212	MIKBUG E0D0
MOVE 0FD4	MOVFLG 0080	MSLFLG 006C	NEWPOS 004A	NEXT 09CC
NLDSTR 0DA3	NOCURL 0074	NOFSTR 0464	NORMST 0C77	NOTFND 045F
NTRCHS 0D7F	NUMBER 0090	NUMFLG 006A	NUMSET 091D	NUMSE2 0928
NUMSE4 092D	NUMSE6 0930	NWFSTR 034B	NXTFLG 0076	NXTLIN 06C3
NXTLI2 06CA	NXTOCR 0A83	NXTOC0 0A87	NXTOC1 0A96	NXTOC2 0A9F
NXTOC3 0AA4	OCCURR 0A48	OCCUR3 0A67	OCCUR4 0A76	OCCUR5 0A79
OCRCNT 006E	OCRFLG 0078	OCRTMP 0068	OFF 0958	ON 0956
ONOFF 0937	ONOFB 0946	OUTBCD 08D4	OUTBC2 08DD	OUTBC3 08E5
OUTBC4 08ED	OUTBC6 08F9	OUTBC7 0900	OUTBC8 090B	OUTB35 08EB
OUTB65 08FE	OUTB75 0906	OUTB78 0908	OUTCH 0209	OUTH1 0913
OUTHR 0917	OUTLIN 08AF	OUTLI2 08BF	OUTLI4 08CB	OUTL15 08BC
OUTSPC 08CD	OVER 04C1	OVERLA 0F21	OVL PST 10B4	OVRBEG 0072
OUREND 0073	OURLA0 0F3C	OURLA1 0F45	OURLA2 0F5C	OURLA3 0F6C
OURLA4 0F7C	OURLA5 0F9D	OURLA6 0FAE	OURLA7 0FC2	OURLA8 0FC7
OURLST 0FCA	OURL11 0F47	OURL12 0F53	OURL16 0F56	OURL35 0F71
OURL41 0F7E	OURL43 0F96	OURL45 0F98	OURL55 0FA6	PCRLF 044E
PDATA1 0485	PEDIT 0383	PREROR 0444	PRINT 0877	PRINT0 087E
PRINT1 0885	PRINT5 089D	PRINT6 08A2	PRIN12 088C	PRNFLG 008A
PROMPT 0023	PSTRNG 0483	PSTZFL 006D	PUTNUM 068B	RDCHKE 147E
RDCHK2 147F	RDCHK3 1488	READ 142A	READ1 1447	READ2 144D
READ3 1460	READ4 1464	READ5 1468	READ6 147B	RECORD 13D3
RECOR2 13DC	RECOR3 13EF	RECOR4 13F5	RECOR5 13FA	RECOR6 13FD
RECOR7 1400	REC025 13E3	RENSTR 0BF2	RENUMB 06A5	RENUM1 06AA

RENUM2 06B0	RENUM4 06C0	REPFLG 00B1	REPLAC 0C87	RESTRT 0203
ROFCH 00BA	RONCH 00B9	RSTSPT 0F14	SAVE 139D	SAVE4 13AA
SAVOCR 0A7A	SEOL 11E5	SET 11CC	SETC 11ED	SETC2 1204
SETC4 1213	SETC5 1228	SETC6 1232	SETC8 1237	SETDEL 05FA
SETDE2 0600	SETDE4 060E	SETDE5 0617	SFILL 11E0	SKIPSA 0491
SKIPSP 0492	SKIPS2 0498	SKPCLS 0738	SLINO 11EA	SNGLIN 0084
SPCPT1 0058	SPCPT2 005A	SRCHPT 004C	STAB 11DB	STACK 01FF
START 0200	STRCNT 007B	STRCN1 0071	STRCN2 0086	STRGB1 0052
STRGE1 0054	STRING 06CD	STRIN1 06DA	STRIN2 06E2	STRIN3 06E8
STRIN4 0709	STRIN5 070D	STRIN6 071C	STRIN7 0729	STRIN8 072B
STRIN9 0735	STRNGB 004E	STRNGE 0050	STRPNT 0056	SVSTPT 0F07
SYNERR 0471	SYNSTR 0476	SZONE 117E	SZONE2 1192	SZONE3 1199
SZONE4 11A0	SZONE5 11A4	SZONE6 11B8	SZONE7 11BD	SZONE8 11C9
SZON75 11C4	TAB 10D0	TABBUF 009D	TABCH 00B2	TABEND 00B1
TABLE 0214	TABPNT 009B	TAB2 10D5	TAB4 10EF	TAB5 10FA
TAB6 1110	TAB8 1118	TDELAY 1405	TEMP 0040	TFORCR 09A4
TFORC2 09B1	TFORC3 09B2	TINCH 020C	TMPCHR 00B2	TOFCH 00B8
TOGGLE 095B	TONCH 00B7	TOP 099D	TOUCH 020F	TRGLIN 0093
TSTEMP 08A8	TSTEND 0663	TSTEN2 0669	TSTMSL 09B5	TSTMS2 09BB
TSTMS4 09C6	TSTMS5 09CB	TSTNUM 0838	TSTNU2 083E	TSTOVR 0821
TSTOV2 0829	UPONE 080F	UPONE1 0813	UPONE2 0819	VERFLG 006B
VERLIN 083F	VERLI1 0849	VERLI2 0872	VERL12 084C	VERL15 085C
VERSET 0963	VERSE2 096E	VERSE4 0973	VERSE6 0976	WRITE 13AD
WRITE2 13C5	WRITE4 13CF	WRITE5 13D1	XCNTRL 0978	XSAVE 0042
ZOKSTR 0A3B	ZONBUF 0062	ZONE 061A	ZONE1 005E	ZONE2 0060
ZONE3 063B				

OBJECT CODE:

S1 0D 00B1 00 00 20 23 00 06 00 00 00 00 F8
S1 13 0200 7E 03 55 7E 03 83 7E E1 AC 7E E1 D1 7E E1 AC 7E 4C
S1 13 0210 E1 D1 1F FF 41 50 50 45 4E 44 00 12 DD 41 00 12 10
S1 13 0220 DD 42 4F 54 54 4F 4D 00 09 8E 42 00 09 8E 43 48 1D
S1 13 0230 41 4E 47 45 00 0D CB 43 4F 50 59 00 0F F3 43 4F F8
S1 13 0240 00 0F F3 43 00 0D CB 44 45 4C 45 54 45 00 0C 8A 44
S1 13 0250 44 00 0C 8A 45 58 50 41 4E 44 00 12 5C 45 58 50 A5
S1 13 0260 00 12 5C 46 49 4E 44 00 09 CF 46 00 09 CF 47 41 7D
S1 13 0270 50 00 14 13 48 45 41 44 45 52 00 11 1B 48 00 11 D5
S1 13 0280 1B 49 4E 53 45 52 54 00 0A CB 49 00 0A CB 4C 4F F2
S1 13 0290 47 00 09 89 4D 4F 56 45 00 0F D4 4D 4F 00 0F D4 E8
S1 13 02A0 4E 45 58 54 00 09 CC 4E 55 4D 42 45 52 53 00 09 11
S1 13 02B0 1D 4E 55 00 09 1D 4E 00 09 CC 4F 56 45 52 4C 41 68
S1 13 02C0 59 00 0F 21 4F 00 0F 21 50 52 49 4E 54 00 08 77 16
S1 13 02D0 50 00 08 77 52 45 41 44 00 14 2A 52 45 4E 55 4D 6A
S1 13 02E0 42 45 52 00 06 A5 52 45 4E 00 06 A5 52 45 50 4C C3
S1 13 02F0 41 43 45 00 0C 87 52 00 0C 87 53 41 56 45 00 13 77
S1 13 0300 9D 53 45 54 00 11 CC 53 54 4F 50 00 09 89 53 00 58
S1 13 0310 09 89 54 41 42 00 10 D0 54 4F 50 00 09 9D 54 00 A3
S1 13 0320 09 9D 56 45 52 49 46 59 00 09 63 56 00 09 63 57 C9
S1 13 0330 52 49 54 45 00 13 AD 57 00 13 AD 58 00 09 78 5A 7B
S1 13 0340 4F 4E 45 00 11 7E 5A 00 11 7E 00 4E 45 57 20 46 FF
S1 13 0350 49 4C 45 3A 04 8E 01 FF CE 14 92 DF 97 DF 99 CE C3
S1 13 0360 02 03 FF A0 48 CE 00 01 DF 5E CE 01 36 DF 60 86 C7
S1 13 0370 46 97 96 4F 97 9D 4A 97 8F 97 6A 97 6B CE 03 4B F4
S1 13 0380 BD 04 83 DE 97 DF 48 7F 00 6C 8E 01 FF DF 40 DE 13
S1 13 0390 48 DF 4A CE 00 6D 4F A7 00 08 BC 00 8E 26 F8 DE 99
S1 13 03A0 40 96 8F 27 06 7F 00 8F 7E 0A EA 96 6C 26 22 97 56

S1	13	03B0	8E	CE	00	BB	BD	04	4E	86	23	BD	02	09	BD	04	99	27	21
S1	13	03C0	C9	A7	00	81	0D	27	05	BD	04	BB	20	F0	CE	00	BB	DF	0B
S1	13	03D0	44	7F	00	6C	BD	04	D2	4F	97	75	97	8C	DF	4A	DE	44	8E
S1	13	03E0	BD	04	92	DF	44	81	3D	26	08	08	DF	44	CE	0A	A5	20	DF
S1	13	03F0	44	BD	06	63	26	05	CE	08	77	20	3A	DF	40	CE	02	14	BA
S1	13	0400	DF	9B	6D	00	27	23	A1	00	26	0C	DE	44	08	A6	00	DF	35
S1	13	0410	44	DE	9B	08	20	EA	08	6D	00	26	FB	08	08	08	6D	00	EE
S1	13	0420	27	1F	09	DF	9B	DE	40	20	E4	08	EE	00	8C	0A	C8	26	63
S1	13	0430	04	96	7F	26	0A	BD	08	21	26	25	4F	97	72	97	73	6E	6E
S1	13	0440	00	CE	04	4C	8D	3D	7F	00	6C	7E	03	8A	3F	04	DF	42	66
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S1	13	1170	20	05	96	91	BD	09	17	D1	96	26	E1	7E	09	30	DE	44	FB
S1	13	1180	BD	04	92	BD	06	63	27	0A	BD	07	3B	C1	01	27	0A	22	9D
S1	13	1190	38	08	DF	44	CE	00	01	20	07	BD	07	55	DF	44	DE	90	48
S1	13	11A0	DF	5E	DE	44	BD	04	92	BD	06	63	27	0C	BD	07	3B	C1	70
S1	13	11B0	01	27	0A	22	14	08	20	EC	CE	01	36	20	07	BD	07	55	6A
S1	13	11C0	DF	44	DE	90	DF	60	7E	09	30	7E	04	41	DE	44	BD	04	EE
S1	13	11D0	92	DF	44	DF	40	CE	12	41	7E	04	00	CE	00	B2	20	0D	E7
S1	13	11E0	CE	00	B3	20	08	CE	00	B5	20	03	CE	00	B4	DF	40	DE	2D
S1	13	11F0	44	BD	04	92	81	3D	26	3F	8D	40	26	3B	8D	3C	26	04	10
S1	13	1200	4F	36	20	0F	BD	07	3B	5D	26	2D	B1	0D	27	29	36	8D	D6
S1	13	1210	29	26	24	08	DF	44	BD	09	A4	32	DE	40	8C	00	B3	26	0D
S1	13	1220	07	4D	26	0E	86	20	20	0A	8C	00	B4	26	05	4D	26	02	82
S1	13	1230	86	23	A7	00	7E	09	30	7E	04	71	08	BD	04	92	81	27	AD
S1	13	1240	39	54	41	42	00	11	DB	46	49	4C	4C	00	11	E0	45	4F	F2
S1	13	1250	4C	00	11	E5	4C	49	4E	4F	00	11	EA	00	BD	08	A8	DE	D0
S1	13	1260	44	BD	04	E9	DE	4A	86	01	97	8A	DF	48	9C	93	26	03	3D

S1 13 1270 7F 00 8A 8D 10 96 8A 27 09 DE 4A BD 06 C3 DF 4A 9D
 S1 13 1280 20 E8 7E 08 A2 96 B2 91 B3 27 51 CE 00 9D DF 9B 41
 S1 13 1290 E6 00 27 48 5F D7 8D DE 4A 9C 99 26 03 7E 03 8A A1
 S1 13 12A0 08 08 08 5C A6 00 81 0D 27 32 91 B2 27 03 08 20 A4
 S1 13 12B0 F2 DF 40 DE 9B E1 00 24 1E 86 FF 4C 5C E1 00 26 49
 S1 13 12C0 FA 97 8E DE 40 DF 58 BD 0C 08 D6 8E 5C 96 B3 A7 25
 S1 13 12D0 00 08 5A 26 FA 20 AE 08 A6 00 26 D9 39 BD 08 A8 67
 S1 13 12E0 DE 44 BD 04 92 BD 06 63 26 03 7E 04 71 BD 07 3B 44
 S1 13 12F0 5D 26 F7 BD 05 FA BD 07 3B C1 01 26 13 BD 07 55 A1
 S1 13 1300 BD 08 38 27 0B 4F 4C 36 BD 08 2A 32 26 F8 97 7A 89
 S1 13 1310 BD 0F 07 DE 44 BD 04 E9 BD 0F 14 7F 00 8D 7C 00 C2
 S1 13 1320 8A DE 4A 9C 93 26 03 7F 00 8A 08 08 08 96 7A 26 58
 S1 13 1330 06 09 BD 07 E6 20 37 16 5A 27 1C A6 00 81 0D 27 8B
 S1 13 1340 03 08 20 F4 DF 58 D7 8E 37 BD 0C 08 33 86 20 A7 56
 S1 13 1350 00 08 5A 26 FA 20 17 DF 58 DF 40 A6 00 81 0D 27 1F
 S1 13 1360 04 08 5C 20 F6 D7 8E DF 5A BD 0D 43 DE 40 DF 58 FB
 S1 13 1370 96 78 27 12 97 8E BD 0C 08 DE 50 DF 58 DE 4E DF B9
 S1 13 1380 40 BD 0C 64 DE 5A 5F BD 07 F6 BD 08 3F 96 8A 27 50
 S1 13 1390 07 BD 06 C3 DF 4A 20 8B DF 48 7E 08 A2 BD 09 A4 2F
 S1 13 13A0 DE 97 DF 58 DE 99 DF 5A BD 29 7E 09 30 BD 08 A8 03
 S1 13 13B0 DE 44 BD 04 E9 96 8C 26 0C BD 07 E6 08 DF 5A DE 40
 S1 13 13C0 4A DF 58 20 0A DF 58 DE 4A BD 07 E6 08 DF 5A 8D 97
 S1 13 13D0 02 20 D7 96 B9 BD 02 0F 8D 2B DE 58 9C 5A 27 15 D3
 S1 13 13E0 08 08 08 A6 00 81 0D 27 06 BD 02 0F 08 20 F4 BD D9
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 S1 13 1400 96 BA BD 02 0F 96 B6 27 09 CE FF FF 09 26 FD 4A FC
 S1 13 1410 20 F5 39 BD 09 A4 96 B9 BD 02 0F 8D E8 C6 28 4F 41
 S1 13 1420 BD 02 0F 5A 26 F9 8D D8 20 A7 BD 09 A4 96 B7 BD D1
 S1 13 1430 02 0F 8D D1 BD 07 A3 DE 99 DF 40 9C 97 27 08 BD 1D
 S1 13 1440 07 F0 BD 06 98 DE 99 8D 35 8D 33 8D 31 BD 02 0C C4
 S1 13 1450 81 0D 27 0C 81 1A 27 0C 81 1F 23 F1 8D 21 20 ED 8A
 S1 13 1460 8D 1D 20 E3 5F BD 07 F6 DF 99 7C 00 83 96 B8 BD 30
 S1 13 1470 02 0F 9C 40 27 05 DE 40 BD 06 B0 7E 09 90 4F BC 9C
 S1 13 1480 02 12 27 04 A7 00 08 39 BD 02 0C 81 1A 26 F9 20 8C
 S1 05 1490 D3 0D 76
 S1 05 A048 02 00 10
 S9